DEVELOPMENT OF RESEARCH COMPETENCIES AMONG ACADEMIC LIBRARIANS

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ABSTRACT

Nina Exner: Development of Research Competencies among Academic Librarians
(Under the direction of Barbara B. Moran)

Academic librarians are often expected to do research. But most librarians take at most one class in doing research. Therefore, academic librarians may not be prepared for researching and publishing. This dissertation asked the question: How do academic librarians develop competencies necessary for success in their initial efforts to do research? Two subquestions emerged: (SQ_1) how do academic librarians experience their early research projects, and (SQ_2) what personal attributes and contextual factors help academic librarians succeed in their research?

This study interviewed academic librarians who had succeeded in research. Secondary interviews with peers and supervisors explored librarians' research contexts. Cultural Historical Activity Theory (CHAT) was the theoretical lens for thematic analysis.

This study found that the experience of being a researcher-librarian one of learning while doing, shaped by the library context. All of the CHAT-defined constructs of an Activity (i.e. Subject, Object, Tools, Rules, the Division of Labor, Community, and Outcome) demonstrated themes unique to the experience of research as a librarian. The learning is not complete with a single success in researching, so successive attempts bring in new experiences and competencies as the librarian again approaches and works through uncertainty in their researching activities.

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CHAPTER 1: INTRODUCTION

Conducting research is challenging. Learning to conduct research is even more challenging. Academic librarians have many reasons to learn to conduct research, but they have few strategies for success. There are no established models that show how professional librarians can learn to conduct good research while in the library workplace. The literature shows the need for librarian research. It also shows the frustrations of learning to be a researcher-librarian. But the literature offers mostly anecdotal solutions. There are only a few studies on how librarians can best address their research frustrations and achieve success in research (e.g. Ackerman, Hunter, & Wilkinson, 2018; Booth, 2011; Fennewald, 2008; Hoffmann, Berg, & Koufogiannakis, 2015, 2017; Kennedy & Brancolini, 2012, 2018). However, existing studies are often based on anecdotal literature, studies focused on specific programs or institutions, or broader surveys which were in turn developed based on either anecdotal literature or limited-scope data. Furthermore, there are few evidence-based models existing that might be used to construct a survey without these limitations. Little is really known of the experiences and process of reaching research success.

To begin to solve the challenges facing would-be academic researcher-librarians, it is necessary to understand how academic librarians experience beginning to research. While many academic librarians support research activities, especially of students and faculty, these support roles do not involve the full research cycle. Knowing about research does not appear to provide knowledge on how to do research. The frustrations voiced in the literature attest to that (Lamothe, 2012; Schrimsher & Northrup, 2013).

Academic librarians have many research-related skills. Typical academic librarian activities include data management, copyright assistance, and training students on working with the literature. So, some essential parts of the research process are familiar to librarians. Yet, these skills do not appear to suffice for academic librarians to become researchers. One possible reason is that librarian research support skills focus on different parts of the process than faculty researchers focus on. Student literature reviews, which librarians work with the most, are subtly different than literature reviews for original research. Planning for data management may give insight into data structures but not into data collection and analysis. It may be that librarians practice research support in ways that are too different from how original research is practiced.

Another possibility is that there is more to research than an accumulation of skills. Looking at other researchers' development experiences, this seems to be true. Becoming a researcher is more than acquiring a series of straightforward skills. Being a researcher involves a change in mindset and identity. Learning to research requires integrating diverse skills into a whole that is larger than its parts.

Researchers usually undergo an experiential process of integrating skills into a greater whole that transforms their mindset. However, this experiential process is usually a dedicated process. The most common time this occurs is during doctoral education. Sometimes it also occurs during mentored faculty development experiences. But there are few discussions of how this complex integration can occur for professionals like librarians while they are working in their usual daily professional roles.

For that reason, it would be useful to understand how successful researcher-librarians experienced this process. There are far more tales of challenges than successes in the literature on academic researcher-librarianship. If we understood the details of how these challenges arise,

and how successful researcher-librarians navigate them, then better supports could be put in place. Systems could be created to encourage researcher-librarianship. The resulting successful researcher-librarians would be better equipped to produce effective, accurate, practice-informed research. The librarians, their libraries, and the profession would benefit from the proliferation of improved research among academic librarians.

1.1 Specific Aims and Research Question

This study investigated the central question: How do academic librarians develop competencies necessary for success in their initial efforts to do research? Based on the responses and experiences of the participants, two subquestions emerged: (SQ_1) how do academic librarians experience their early research projects, and (SQ_2) what personal attributes and contextual factors help academic librarians succeed in their research?

This question demands a look at the contextualized experience of the new researcher. Although development into being a researcher is an individual process, it does not happen in isolation. The internal process of integrating research skills and identity to achieve success in research is connected to the more external realm of professional practices, being mentored, and other challenges and supports. Challenges might be internal barriers to comprehension, motivation, and so on. But they may equally be external barriers to the time, thought, and effort needed to pursue successful development. Supports towards success might also come from internal or external sources. Determination, insight, and creative investigation of research techniques are just a few possible internal supports a researcher-librarian might use to develop competency. Likewise, external supports might be mentoring, encouragement, or resources of various kinds. One goal for this study is to discover and highlight some effective strategies - internal or external - in order to inform individuals and organizations interested in research.

Research is part of academic librarianship, but librarians are frustrated when they do not know how to do research. That is a serious problem, which this research hopefully begins to address. This study is intended to create a better view of how librarians, libraries, and the profession interact to hinder and help research competency. These insights suggest better supports and strategies for would-be researcher-librarians to develop successfully as researchers.

1.2 Terms and Definitions

- Academic librarian: A librarian practicing his/her professional librarianship in a higher education environment. Academic librarians may be found in community and junior colleges, colleges, or universities. The expectation of research productivity is most common among university librarians, but any academic librarian may have reasons to pursue research.
- Activity theory: Unless otherwise specified, refers specifically to Engeström's second-generation cultural historical activity theory (CHAT)
- Cultural-Historical Activity Theory (CHAT): A theory, grounded in the Vygotskian school of thought, which focuses on activity as the main organizing and learning process of human beings. In this study, second generation activity theory (Engeström, 1999; Engeström, Miettinen, & Punamäki, 1999) is the primary theoretical framework.
- Development: A process of learning and growth by working through complex uncertainties and successfully navigating those uncertainties.
- Research: The production of new knowledge through qualitative, quantitative, or other methods of inquiry and rigorous analysis. Librarians' professional philosophies favor research of engagement and research of teaching, but can also include research of discovery and integration (a typology by Boyer, 1990). It stands in contrast to "library

research papers" where students come to the library to find and work with existing knowledge in support of a perspective or conclusion.

- Research competencies: The attitudes, skills, knowledge, and other personal attributes needed to conduct original research.
- Research productivity: The creation of a concrete, shareable artifact of original findings. Common artifacts of this kind include journal articles, book chapters, and conference posters or presentations.
- Researcher-librarian: A practitioner-researcher of librarianship, who is skilled and productive both as a librarian and as a researcher. Many libraries use "faculty" to specify librarians who are expected to be researcher-librarians (as compared to "subject faculty" for non-library academic faculty). Interview sites used terms such as scholar-librarian, librarian scholar, faculty archivist, and faculty librarian.
- Researching: The Activity, in the CHAT sense, of doing research and achieving some element of research productivity.

1.3 Delimitations and Boundaries of the Study

An important delimitation of this study is the focus on librarians doing original, relatively rigorous research. There has been a tendency towards casual summaries and write-ups of library innovations, presented with just enough data to be research-like but with little serious analysis (Hildreth & Aytac, 2007). However, practices have moved away from those towards increasing rigor (Slutsky & Aytac, 2014). As this trend grows, academic librarians who want to produce rigorous research face the greatest challenges. For that reason, the goal of the study is to look at the most serious challenge: original research for peer review. This study focuses on original research for peer reviewed publication or refereed presentation at a national conference because

those are the core audiences that librarians think of when planning the creation of rigorous original research.

This study is an exploratory, qualitative study. The study attempts to make a preliminary model of individual and contextual factors that challenge and/or support academic librarians who are attempting to become researchers. There is little known so far about the context of becoming a researcher in an academic library. For that reason, a preliminary model is needed to begin understanding these experiences. Inherently, this cannot be a generalizable study. While it is hoped that this study may lay groundwork for future generalizable studies, this study could only explore a limited number of librarians' experiences. Transferability was limited by the contextual elements that participants describe. Discussing the details of research triumphs and frustrations is awkward for participants, so the thick description needed for transferability may not always emerge.

CHAPTER 2: LITERATURE REVIEW

There are not many in-depth studies in the literature on librarians' research. A few key items like Fennewald's (2008) study of supports at Penn State's library are focused on large institutions with high budgets. Although he found that internal and organizational motivation factors were both meaningful, and that release time was a valuable support, the specific details are not necessarily transferrable to libraries with smaller budgets or less control over their librarians' status expectations. Broader studies such as works by Kennedy and Brancolini (2011) and Brancolini, Kennedy, and Chavez (2014) on research skills and research confidence have transferability and validity for a range of academic libraries. But these focus on librarians in a specific career stage, and with the resources of a training institute behind them. A gap exists around the topic of librarians' needs and libraries' support options across a wider range of libraries. Libraries with fewer resources, and those where research requirements come as a campus mandate, are in particularly vulnerable positions. To keep these libraries represented in the evidence, an understanding is needed about how a broad range of librarians' experience research.

2.1 Practitioner-Research and the Academic Librarian

Academic librarians who seek to become researchers are often practitioner-researchers (Watson-Boone, 2000; V. Wilson, 2013). They often focus on what Boyer (1990) calls the scholarship of engagement. That is to say, they research issues of how to provide better services and make improvements on practical problems. Practitioner-researchers typically study their practice, research in order to inform practice or policy, and inculcate their professional practice

in their research (Hinton & Fischer, 2008; Jarvis, 1999; Shaw & Lunt, 2012). They perform their research on-the-job and balance their research with other professional obligations.

Practitioner-research uses many of the same methods employed by more traditional researchers. Yet practitioner-researchers have different backgrounds and contexts based on their practice. These backgrounds often do not prepare practitioner-researchers to perform research. There are works on the benefits of practitioner-research that include primers on research for practitioners (e.g., Jarvis, 1999). Such advice may be useful for practitioners and librarians trying to figure out research for themselves. Yet, in many fields the practitioner-research lacks rigor. Among librarians, practitioner-originated research is often not rigorous (Hildreth & Aytac, 2007). Librarian practitioner-research is being published, but publication alone does not ensure research quality. This points to some disconnect in librarian research.

2.1.1 Why academic librarians research.

If librarians are publishing research regardless of whether it is good research, then one wonders why they publish at all. Many academic librarians are required to research as a condition of faculty status. Some estimates suggest about half of academic librarians at universities have some form of faculty status or a parallel evaluation process that recognizes research productivity (Bolin, 2008a; Collins & Cook, 2017; Mitchell & Reichel, 1999). The exact rates are unknown, and studies among focused groups of libraries range wildly in their findings (Bolger & Smith, 2006; Bolin, 2008b; Duffy & Webb, 2017; Galbraith, Smart, Smith, & Reed, 2014; Hosburgh, 2011). But in any library where research is tied to employment through tenure, other faculty contracts, or promotion, that external pressure provides a strong push for librarians to research (Fennewald, 2008; Hoffmann, Berg, & Koufogiannakis, 2017; Ibegbulam, & Jacintha, 2016). So faculty status is a common motivator, with research required as a part of

employment. However, the tenure process is stressful, and many pre-tenure librarians have strongly negative views about it (Silva, Galbraith, & Groesbeck, 2017). Pressure to publish is one of the top challenges for faculty-librarians, especially before tenure is achieved (Galbraith, Garrison, & Hales, 2016; Hosburgh, 2011). Faculty status is a top determinant of publication rates (Blecic, et al., 2017; Galbraith et al., 2014). So there is a very tight connection between research for publication and tenure as a motivator for research, but this connection also highlights how challenging librarians find research competency development.

However, faculty status is not the only reason to research. Professionalism motivates many librarians to research and publish. Librarianship as a profession benefits when librarians publish (Etches-Johnson, 2004). Pursuing high-quality original research helps hone librarians' understanding of research and therefore their ability to support research (Lamothe, 2012; Snyder-Broussard, 2016). Research by librarians helps ensure that the pressing interests of working professionals – which are different from those of library school faculty – are well represented in the literature (Brancolini, 2016; Chang, 2016; Abbas et al., 2016). Research by practitioners is also a way to improve the relationship between research and practice (V. Wilson, 2013). To harness research for the improvement of practice, Evidence-Based Librarianship and Information Practice (EBLIP) has emerged in the profession (Eldredge, 2012). The EBLIP movement has encompassed a wide range of research-, data-, and assessment-based approaches to the profession, and represents a way of systematically proving and improving librarianship through the use of research (Eldredge, 2013, 2014; Gordon, 2009; Miller er al., 2017). EBLIP is interested in both the local and the profession-wide application of research. This is related to but often distinct from research for assessment. Assessment prioritizes proving specific libraries' effectiveness as well as improving it; assessment is also more organizationally-focused than

professionally-focused and may or may not relate to publishing or presentation production (Millet et al., 2017). However, the methods and tools used for library research, EBLIP, and assessment have many similarities (Savage, Piotrowski, & Massengale, 2017). So there is often overlap in the area of skills development and development challenges.

So whether for professional idealism or employment practicalities, academic librarians have good reasons to do research. Librarians benefit professionally from doing research. Their libraries benefit from the skills and recognition that come with having researcher-librarians. And the profession as a whole benefits from practitioner-engaged research adding to the knowledge base of the profession.

2.1.2 How academic librarians research.

There is little ground to describe a dominant methodology for librarians' research (Risso, 2016). Librarians tend to draw on the social sciences for the knowledge core of information behavior research, but librarians have many interdisciplinary interests as well. For a long time, librarian research was dominated by a much-bemoaned "how we done good" style of activity report (Hildreth & Aytac, 2007). Fortunately perhaps, the research grounding of studies by academic librarians has been growing. Recent librarian research has moved strongly to more evaluative-quantitative, research-oriented quantitative, and rigorously analytical qualitative articles (Slutsky & Aytac, 2014).

Unsurprisingly with changes in the librarian workforce, the trends in librarian research productivity are also in flux. Librarian contributions to the LIS literature are decreasing overall (Finlay, Ni, Tsou, & Sugimoto, 2013; Blecic et al., 2017), but select institutions are increasing their output (Blecic, et al., 2017; Wirth, Kelly, & Webster, 2010). This reflects changes in higher

education, with economic pressures allowing less time for research in many institutions, but select institutions putting heavy pressure on faculty and others to produce more research.

Survey research is a particularly common research technique among librarians, often written up using descriptive statistical summaries (Slutsky & Aytac, 2014). It is arguable that surveys are overused or at least under-rigorous (Halpern, Eaker, Jackson, & Bougin, 2015). The popularity of surveys is probably because of the low barrier to entry and relatively straightforward analysis. Descriptive statistics do not require librarians to learn sophisticated quantitative software, and surveys can be created with simple, familiar tools or even given on paper.

2.2 Research Support in Academic Libraries

Organizational support and training are essential if librarians are to engage in research (Miggie, 2016). Libraries have tried a variety of approaches to support and increase research productivity (Miggie, 2016; Hoffmann et al., 2015 Ibegbulam & Jacintha, 2016; Miggie, 2016), but reports of the success of these programs are not systematic. A variety of librarians have reported on the advantages of peer-based support groups for facilitating librarians' research and writing efforts (Brannock, Miao, & Zelner, 2006; Campbell, Ellis, & Adebonojo, 2011; Cirasella & Smale, 2011; Exner & Houk, 2010; Sullivan, Leong, Yee, Giddens, & Phillips, 2013). The community around a prospective researcher plays an essential role in support. Collaboration and mentoring are both considered to be valuable factors in encouraging research publication (Ibegbulam, & Jacintha, 2016). Peer support appears to be the most common library-level support mechanism, since it requires relatively little commitment on the part of the library to implement. However, peer support is challenging if none of the peers can mentor the others (Exner & Houk, 2010). Formalized training sessions are a moderate-cost method that has also

proven effective and offers more in-depth support than peer support alone (Fallon, 2010). More unusual but also effective has been McMaster University's "Faculty Member in Residence" mentoring program to connect non-library faculty to librarians to help mentor the library faculty in research (Detlor & Lewis, 2015).

There are a variety of institutional structures and supports that have been found to contribute as well (Hoffmann et al., 2015). Many of these are more resource-intensive and organizationally-demanding support mechanisms, so they are only found in larger university libraries. Release time for research and writing – away from the 40-hour work week of the typical academic librarian – has been discussed as a valuable strategy for allowing librarians to concentrate on their scholarly work (Hill, 2005; Kenny & Tietjen, 1990). Unsurprisingly, most of the discussion of this strategy happened before the recent economic downturn.

Larger-scale projects have appeared recently in the field, which implies interest in research is on the rise. The Canadian Association of Research Libraries formed an association-wide annual Librarians' Research Institute in 2012, and a 2013 spinoff group formed as a partnership between McGill and Concordia University Libraries to better target their particular needs (Carson, Colosimo, Lake, & McMillan, 2014). Kennedy and Brancolini (2011) studied librarians' confidence, views, and interests in pursuing research, which they then used to design an IMLS-funded librarian skills-development intervention. These initiatives are so recent that it is still hard to know what impact they will have on the field, but their existence and continued ability to draw response from the field provide an interesting insight into the importance of research support to librarians.

2.2.1 Challenges in librarian research.

Barriers to research are concerning for all would-be researchers. Barriers are a particularly serious issue for librarian organizations. Librarian faculty status by name only is the worst possible case; putting status in place by name but without the full rights and responsibilities of that status can only do harm (Hosburgh, 2011). High-producing librarians generally have supports available to them that are comparable with other campus faculty (Walters, 2016). Advocating for tenure at research universities requires or at least strongly implies advocating for research. As long as libraries expect their librarians to perform research, they must support the performance of research. As long as library organizations and professionals (e.g. Association of College and Research Libraries, 2012; Gillum, 2010) advocate explicitly or by implication for research, it is necessary to support performance of research.

Writing and research support is a point of concern in many parts of the literature. Even among the relatively research-focused health sciences, only a minority of librarians feel skilled in essential research skills (Lessik, et al., 2016). Tysick and Babb (2006) discuss the stress and anxiety that librarians face in attempting to research and write. Research plays heavily in arguments against librarian faculty status because of publishing stress (Shapiro, 2006), and because librarians are said to face special challenges due to the terminal Master's degree (Hill, 1994; McGowan & Dow, 1995). Even without faculty status, research expectations in academic library employment are an issue. Research is considered a painful and difficult part of academic expectations. It is described as "a nightmare" or the "R-word" (Lamothe, 2012; Schrader, 1993; Schrimsher & Northrup, 2013). So contention surrounding research as an evaluative mandate is a serious challenge in academic librarianship.

In a general sense, the barriers are much the same as any faculty member experiences. The research culture of the university and the research culture of the library mirror each other (Walters, 2016). Academic librarians need time, support, mentoring, experience, and infrastructural support. But because so much of the professional dynamic and background of librarians is different from those of other faculty, there is a sense that the challenges are different. There is also a sense that the challenges are not being adequately supported and developed. This development need is a significant part of the motivation for this study.

2.3 Developing Research Competency among Non-Librarian Researchers

Of the attention that has been paid to these issues in the library literature, none is of a research-based or generalizable-theoretical nature. We have mostly anecdotal discussions of on-the-job librarian research skills support. Having shown that academic librarians have an interest in developing as researchers, I must turn next to other areas to look for research or theory on the emergence and development of these skills. Faculty development, graduate education, scientific industry, and R&D management have all looked a little at issues of research competency development.

2.3.1 Graduate students' research competencies.

Though possibly the least relevant to the experience among academic librarians, the most studied site of researcher skill development as a phenomenon is graduate school. In searching for disciplines that had studied research competency development as a phenomenon, graduate students' skills and education appeared frequently in anecdotal, empirical, and theoretical work. It is challenging to know whether to include it in a discussion such as this one, because students' development is quite different in context than practitioners' development.

In the end, I determined that students' research learning must be included in this discussion. Only in graduate students' emergence do we see the full course from non-researcher to producer-of-original-research played out. And only in the study of graduate students' development as researchers do we see an effort at (potentially) generalizable theory generation of how people become researchers. So it is incumbent to at least consider this area of study. Considering this area of study, here, means considering whether these potentially generalizable theories suggest valuable insight on developing research competencies in other contexts.

A particularly interesting view is Gardner's (2008) exploration of becoming an independent researcher in doctoral education. The Gardner model has been applied to other support studies and program development with good success (e.g. Holley & Caldwell, 2012; Murray & Cunningham, 2011). Gardner's (2008) approach is grounded in observed patterns of student's needs over time, and finds that research competency develops across personal, relational, and programmatic dimensions over time. Interesting insights from this are that there is more than just skills-based (programmatic) development needed for eventual success. Doctoral students must also develop into a successful relationship with their advisor and peers, and then transition again into independence. This issue of the transition to independence ties closely the concept of self-regulation, which Kelley and Salisbury-Glennon (2016) have found to be a major factor in whether doctoral students complete the dissertation or leave their program at the All But Dissertation stage. The dual set of transitions – moving into a successful advising relationship and then transitioning out of it into research independence – may give some insight into librarians' mentor/mentee relationships as well. The personal layer is also critical, as understanding of researchers' expectations, then identity as a researcher-learner, then identity as a researcher must all form in turn. The importance of both personal internal identity development

and external relationship transitions is highlighted in Gardner's (2008) study. One could envision a mentoring / training program based on this model that has pre-program preparations, then mentoring and training in research skills, then a transition to independence and support for researcher identity formation among professionals. Many of the details would change but some of the fundamental concepts in the process might apply. Murray and Cunningham (2011) applied parts of the Gardner approach to faculty development retreat planning. One could imagine a similar training program supporting librarians, or at least using these insights to help better inform mentors in how to support research mentees. This could be a good model for librarians' applied support. Having a follow-through stage to support the transition to independence could be particularly important in such a design, and is incorporated into one such training for librarians, the Institute for Research Design in Librarianship, (Brancolini et al., 2014).

Other studies of graduate student learning have focused less on psychosocial changes and more on psychological ones. Synthesis of research skills, specifically the complexity of synthesizing skills, features prominently. Several of these center around research as a "threshold concept." The theory of threshold concepts is a relatively recent approach by Meyer and Land (2003, 2005, 2006) to analyzing how learners learn complex concepts. At least two groups of scholars have, independently, taken approaches to applying the threshold concepts approach to graduate student research development. Threshold concept theory, generally, proposes that there are troublesome concepts throughout learning, and that the process of internalizing these troublesome concepts is like passing an intellectual threshold. While attempting, cognitively, to pass through this threshold the learner is in a "liminal state" of uncertainty. After passing such a threshold, the learner's conceptualization of the world is irrevocably changed. Examples of threshold concepts in learning include the concept of entropy in physics and the concept of

depreciation in accounting (Meyer & Land, 2005), as well as the concept of information literacy in library science (Townsend, Brunetti, & Hofer, 2011).

Learning to become a researcher has also been described as the synthesis of several of these troublesome or threshold concepts. This parallels anecdotal statements that doctoral study changes the learner. One group of threshold-concept-based views of research learning cluster around specific troublesome concepts. In the "doctorateness" threshold concept (Trafford & Leshem, 2009), a group of skills needed to become a doctoral researcher is identified. Doctorate skills include research cycle skills such as gap identification, creating a research question, conceptual frameworks, design, methodology, engagement with theory, cogency of argument, and contributing to knowledge; ultimately, however, it is the “synergy” that determines true passage of the doctorateness threshold (Trafford & Leshem, 2009). This concept of skills integration also appears in interviews by Kiley (2015) on doctoral sticking stages, with the integration of theory into the larger scheme of research being a key sticking stage in reaching the larger goal of research mastery. Even when viewed by external evaluators, there seems to be a sudden point where ideas fall into place and the researcher combines skills into an effective whole. Kiley and Wisker (2009) studied postdoctoral evaluations from after the "threshold crossing" phenomenon; Timmerman, Feldon, Maher, Strickland, and Gilmore (2013) studied experts’ evaluations of STEM graduate student research proposals. These threshold studies reveal patterns of blockage followed by a sense of “passage” over those blockages, a sense of transformation, and (perhaps most relevant here) the idea that a sense of synthesis among all of the experiences of research is needed to fully become a researcher (Kiley, 2015; Kiley & Wisker, 2009).

Tying doctoral students' research experiences to librarians' research experiences is challenging. The contexts are too different. But perhaps librarian researchers have broadly parallel needs. If identity as a researcher is needed, then it becomes important to know what leads a librarian to internalize a researcher identity. If movement to a mentored relationship and then beyond that to a peer relationship is needed, there are parallels that can be understood and created for junior librarians. And finally, if skills-synthesis or "synergy" is needed, then it becomes important to understand how librarians experience the road to integrating scattered research skills. Guidance over barriers, perseverance at intellectual exploration, and integrative experiences are keys in the threshold-crossing literature that could play roles in researcher-librarians' experiences. In fact, they may provide the key to why academic librarians face challenges in *doing* research despite their extensive expertise in *supporting* diverse aspects of research in higher education.

2.3.2 Faculty productivity and research skills.

Another area of thought on developing researchers comes from the faculty development literature, which generally concentrates on the improvement of teaching. However, the principles of faculty development in the United States include all 3 common U.S. pillars of faculty life: teaching, research, and service. The field of research around faculty development includes a branch of study on research productivity. The branch on research productivity has, hitherto, tended to focus on motivation and productivity. Equity across sociodemographic groups and general study of faculty barriers to productivity have also been themes in this literature.

Since some librarians are also faculty, faculty development should be relevant to librarian development. But librarians experience expectations differently than teaching faculty and produce research at very different rates as well (Finlay, Ni, Tsou, & Sugimoto, 2013; Freedman,

2014). Therefore, only certain parts are likely to be relevant. The most promising aspects seem to be the focus themes: motivation, productivity, and sociodemographic equity. On a practical level, productivity is the major concern of librarian organizations and the profession as a whole. So studies of faculty productivity growth may provide some suggestions.

There is tension between two motivational approaches to faculty productivity: the intrinsic and the extrinsic. The intrinsic school of thought is most notably represented by faculty development pioneers Blackburn and Lawrence (1995) in their groundbreaking book, *Faculty at Work*. They found that faculty members' intrinsic sense of motivation was the strongest determinant of productivity, but was then mediated and moderated by many internal and external factors. In the intrinsic school of thought, motivation and support for productivity is key and is fundamentally determined by the faculty member. Organizational factors affect productivity mainly by working on or through the individual faculty member (Blackburn & Lawrence, 1995; O'Meara, Terosky, & Neumann, 2008). The strength of these models is in their explanatory value. They help to explain variance among faculty, as well as why sociodemographic backgrounds (such as gender, race, and previous experience) can lead to personal challenges in the academy. The sense of being an "impostor" that racial and gender minorities may experience affects their intrinsic state, and they may require support to overcome these motivational challenges. Intrinsic factors of motivation, preparation, and confidence are then mediated by external factors of fit, communication, and support. By extension this approach shows how the academy fails to equip and accommodate many sociodemographic groups before they become faculty.

From a support perspective, these intrinsic views can be frustrating. Putting most of the sense of drive and agency in the hands of faculty seems to deny the possibility of robust support

other than at the national, systemic level. But there is considerable evidence in the intrinsic school that poor support can stifle even the most intrinsically gifted faculty member. If intrinsic strength can be stifled or undermined, it stands to reason that it must be possible to nurture and uphold it as well. O'Meara et al. (2008) use this logic to study how to nurture intrinsic motivation and reduce these stifling effects. Their study found that promoting faculty learning, sense of agency, and relationship-building all helped reduce barriers and allow motivated faculty to be productive. In the larger body of faculty development research – and the limited available data on researcher-librarianship – the determining versus mediating role of these supports becomes somewhat confounded.

There is another side to the motivational view of faculty productivity. Not all studies agree with early findings that view productivity as intrinsically driven and motivationally determined. When viewed from an organizational sociology perspective, productive organizations depend on support and leadership structures far more than individual strengths (Carole J. Bland, Center, Finstad, Risbey, & Staples, 2005; Carole J Bland, Wersal, VanLoy, & Jacott, 2002). This extrinsic approach forms something of a backlash against the early intrinsic views. It maps well with administrative and organizational science views and offers more actionable points of intervention for administrators and support teams (Bryman, 2007; Ito & Brotheridge, 2007; Mamiseishvili & Rosser, 2010; Santo, Engstrom, Reetz, Schweinle, & Reed, 2009; Smith, Barry, Williamson, Keefe, & Anderson, 2009). It also allows for the development of more models of internal cultures within higher education organizations and those cultures' effects on productivity (e.g. Chung et al., 2010; Eddy & Hart, 2012; Lawrence, Ott, & Bell, 2012; Pompper, 2011). Broader mapping to focused models and greater organization-level actionability probably account for the higher uptake in the literature of these ideas. Discussion on

practical ways to improve researcher support and productivity throughout universities - particularly among medical faculty – is often based in these extrinsic views.

Intrinsic and extrinsic approaches disagree on the issue of what constructs are determinants and which are mediators. However, both approaches agree that a supportive environment encourages research productivity and an unsupportive environment stifles it. Anecdotally, the same appears to be true in academic libraries (Hart, 1999; Parker-Gibson, 2007). One of the few empirical studies of an academic library and its productivity found that intrinsic motivation, organizational mandate, and organizational support all played important roles in determining scholarly productivity (Fennewald, 2008). It is difficult to translate this to a specific finding, but it looks like motivation needs to be added to the larger view of research competencies and development.

Faculty development studies apply to very specific research positions and research environments. Nevertheless, these studies - as well as the highlighted tension between intrinsic motivation and extrinsic organizational culture - offer one of the largest bodies of research on encouraging research competencies across many kinds of researchers. These segue naturally into the broader organizationally-oriented approaches to developing organizational or even national capacity to encourage research and support research competency.

2.3.3 Organizational approaches: Research development and researcher development.

Until now, most of the literature discussed has focused on individuals. Some of these contextualize the individual and some do not. Nonetheless, the focus has been particularly on the developing researcher. However, there is another group of approaches that look at how academic organizations handle and encourage researchers. The audience for these is not researchers

themselves; the subjects and levels of analysis may or may not be researchers. These organizationally-focused studies aim for an improved researcher environment, and so offer the potential to address contextual issues and barriers to librarians' development as researchers.

Applying organization-level analyses to an individual product poses challenges though. As the discussion has already shown, research has many group determinants but it occurs individually. From a practical perspective it makes sense to look at the organization's role in the individual's performance. That practical perspective drives these pragmatic fields of discussion and study. However, from an analytical view the relationship between organization and individual is not well understood. Complex organizations with sophisticated and diverse organizational members represent serious challenges in individual and organizational sensemaking and by extension in the analysis of that sensemaking (Gioia, Thomas, Clark, & Chittipeddi, 1994; Weick, 1995). So while there is a useful, practical logic to this hybrid perspective, it is still relatively difficult to harness from an analytical perspective.

2.3.3.1 Researcher development.

In the UK there is a recent drive to require and support research growth at universities. These requirements put the onus on universities and other research organizations to find ways to improve their researchers. This movement is most succinctly represented by the Research Development Framework [RDF] (Bray & Boon, 2011; Vitae, 2010). The RDF focuses on attributes of successful researchers and the professional development of these researchers, and is used as an evaluation tool in organizational support and effectiveness in developing researcher careers (Vitae, 2010). Support and skill are both considered to be divided into four domains: (1) Knowledge and intellectual abilities: The knowledge, intellectual abilities and techniques to do research, (2) Personal effectiveness: The personal attributes and approach to be an effective

researcher, (3) Research governance and organization: Knowledge of the professional standards and requirements to do research, and (4) Engagement, influence and impact: The knowledge and skills to work with others to ensure the wider impact of research (Vitae, 2010). Each domain then has a list of specific skills that can be demonstrated. Skills lists like the RDF or industry studies of researcher skills (e.g., L'Association Pour l'Emploi des Cadres & Deloitte Consulting, 2010) provide a base for considering relevant skills among different researcher groups. They have advantages in terms of assessment and policymaking (Dear, 2010). But we must consider their applicability to librarian-researcher development. They probably do not apply fully. But the RDF (and related researcher development skills studies) have broad categories that add potential analytical strength. The RDF domains could be used broadly to frame dimensions of inquiry or analysis in a study of librarians as developing researchers. They also provide areas of specific skills to look at for creating training programs for librarians.

Beyond the RDF, the dialog around researcher development is bringing some very interesting ideas to the fore. Surrounding researcher development initiatives, a whole field of British and to some extent European study has emerged. This field, researcher development, is relatively nascent but focuses on how researchers can be developed (Evans, 2011b). Notice that the activity of development is external to the researcher, but the researcher is still the focus. The field therefore tends to focus on contextual elements of researcher behaviors. One approach to this discipline is the idea that being a researcher means being part of a profession - usually a profession that parallels the academic field the researcher is part of - and that professional practice and the development of a professional culture is a key component of research successes (Evans, 2009, 2012). These have obvious connections to the career development epistemology of

the RDF, and lead researcher development to be dominated by professional development practices as a whole (Evans, 2011a; Golovushkina & Milligan, 2012).

Considering this idea of researcher-as-profession is awkward with librarians as researchers, because they are already professionals-in-practice as librarians. The researcher development approach focuses heavily on a bench researcher as its ideal paradigm, as in the image of a professional scientist. But this is a very narrow focus that excludes researchers that produce knowledge from other contexts. The RDF aims to develop a faculty professionality as researchers. Faculty already have a profession as faculty. Therefore, a dualistic professionality is necessary to resolve this approach anyway. It leads to an important question, too, which it would be incumbent on this study to consider. Do researcher-librarians see themselves differently than other academic librarians? It is possible that there is a duality to their professional views (or some other professional difference) that distinguishes established researcher-librarians from academic librarians who are not researchers.

There are other broad conceptualizations emerging from the researcher development field. Gilstrap, Jaron, Milorad, and Buckley (2011) have discussed the idea of researcher vitality as a career development issue among researchers. They suggest that vitality – as a sort of combination of personal energy and contextual support to maintain that energy – is a valuable construct for understanding why some research careers are sustained and some are not. This could be a promising concept for library administrators in sustaining researcher-librarians as well.

2.3.3.2 Research development and research administration.

In the United States the discourse is not around researcher development but research development. The difference is that research development is primarily a matter of institutional

capacity building. Whereas researcher development in the UK comes from a human resources perspective, research development comes from research administration, which in turn stems from the public administration field and perspective.

Research development is a nascent profession as well; its professional society, the National Organization of Research Development Professionals, has been in existence for less than ten years (National Organization of Research Development Professionals, 2016). Its professional and epistemological foundations in the research administration field makes it heavily focused on grant funded researchers and their needs. Research development is therefore quite conceptually far from academic librarianship. Nevertheless, its focus on institutions could help bridge the gap between individual librarians and library administrations. Research development is a field that looks at how to tie the individual researcher's activity to the larger administrative process. For example, research developers Lee and Boud (2003) suggest that writing support is an important starting point for developing the whole researcher. This parallels librarian experiences (e.g. Campbell et al., 2011; Exner & Houk, 2010; Fallon, 2010). However, Lee and Boud are interested in how to connect writing groups to the larger research ecosystem in order to foster researchers, encourage follow-through, and bridge to a full researcher identity and career development planning process (2003). Individual socialization into a larger researcher occupational identity is part of the connection between the action of research and the identity of a researcher (Cusick, 2015). This issue of identity seems to have some overlap with psychology, threshold, professionalization, and motivational issues. It also segues into individual-level competencies, below. These overlaps point to a lynchpin role or at least an explanatory one for identity development in the larger synthesis of issues surrounding research.

This identity-formation step has not been discussed in the library literature; that may be a gap that shows why librarians do not always make that extra step to become established researchers. Librarians who write one or two articles solely because of evaluation mandates may lack this sense of identity. The identity-formation step connects with the doctoral development process (discussed in 2.3.1 above). The idea of a post-training mentoring stage or some other post-writing-group follow-through presents itself as a way to cement librarians' long-term identity as researchers.

The organizational-level views of supporting researcher competency offer some awkward but potentially useful ideas. Research development may be a useful lens on library policies. Researcher development may offer ideas for the profession. In both cases, they identify trends outside of libraries that the librarian community should be aware of and even connect with (as librarians in the UK have with the RDF) for supporting their constituents. But librarians should also consider these trends as potential sources of extra-library inspiration and even support for developing researcher-librarians.

2.3.4 Themes from across the non-librarian researcher competency literature.

Some surprising overlaps have appeared in the course of this discussion. These commonalities point to some important dimensions of researcher competency development. In turn they inform this discussion of librarian-researcher competency development.

First, to develop as a researcher requires more than simply mastering a series of skills (Kiley & Wisker, 2009; Meyer & Land, 2005; Trafford & Leshem, 2009; Vitae, 2010). As the developing researcher learns to develop fully, s/he must also incorporate those skills into a greater whole. Some form of synthesis must take the learning into a larger whole. Through this synthesis, the researcher's concept of research is changed. Researchers begin looking at research

through different lenses, and evolve their view of the nature and process of research. There is also an aspect of "doing" or experiential and active participation in research competency. The existing evidence points to a need for active engagement in the transformational process of becoming a researcher. By doing research and engaging in the guided processes of research, the researcher gradually synthesizes the necessary skills and becomes a capable independent researcher. The researcher must be an active and engaged participant. However, because there is a synthesis needed beyond skills, some guidance is also required.

Therefore, secondly, there are both relationship-building and relationship-changing experiences over the course of researcher development (Cusick, 2015; Gardner, 2008; Lee & Boud, 2003). It is necessary to create relationships which in turn create the researcher. But it is then necessary to transform those relationships to independent collegiality, in order to transform a novice researcher into a fully self-guided researcher. This is a difficult process, with all of the inherent complications of the mentor/mentee relationship and an additional process of navigating from mentee-ship towards independence at the end of the process, to become a researcher capable of performing their own research. In doctoral education, this process is fairly well established and delimited through the dissertation process. But in the professional field there is no such delimitation. Without the structure of graduate education, finding a mentor is less guided than for doctoral students, and moving towards independence has no natural guidelines either. Furthermore, there is no set community of research practice, as there is in academic faculty life, for a researcher-librarian to move into and take up a role and position in. A professional community provides essential context and socialization to support either faculty members' or librarians' growth and identity (Carole J. Bland et al., 2005; Evans, 2009; Shaw & Lunt, 2012).

If communities of researcher-librarians form, that would be a potential support for socialization to support researcher competencies.

Socialization leads to a third important area: identity formation. Becoming a skilled faculty or industry researcher includes an internal transition to develop self-efficacy and psychological identity as a researcher (Black et al., 2013; Blackburn & Lawrence, 1995; Hemmings & Kay, 2010; Lambie & Vaccaro, 2011; Swenson-Britt & Berndt, 2013). Research ability and determination depends heavily on psychological factors of cognition, motivation, and identity (Blackburn & Lawrence, 1995; Golovushkina & Milligan, 2012; Hemmings & Kay, 2010; Pitcher & Åkerlind, 2009; Reybold, 2003; Vitae, 2010).

2.4 Cultural-Historical Activity Theory and Research Competency Development

As we have seen, social context plays an important role in researcher-librarianship. Many of the benefits of academic librarian practitioner-research are gleaned by the library or the profession. These organizations, therefore, have interest in and responsibility for supporting research. More importantly, the development of researcher competency is very dependent on the librarian's context. External supports and challenges appear to be important parts of the development process. Relationships and socialization are important, at least among more traditional developing researchers, to successful researcher development. Therefore, this analysis needs a theoretical framework that puts a heavy emphasis on social contexts.

There are many theories that include contextual level. One concern particular to academic librarians' research is that it is practitioner research. Because this is on-the-job learning enmeshed with attempting to produce tangible research products, the research would benefit from the use of a practice theory. The practice theory school of thought looks at practices and activities as a level of analysis coequal with other theoretical abstractions, focusing on the role of

practices as embodiments of meaning in human social life (Schatzki, von Savigny, & Knorr-Cetina, 2001). There is no unified approach to theorizing about practice, but the practice theories generally look at practices as depending on shared understandings which are embodied in action (Schatzki et al., 2001). Because research is an action, yet reflects both the agreed-on ideas of scholarship in higher education generally and (in this case) of librarianship in particular, this seemed like a valuable school of thought. Moreover, practice theories seemed especially suitable because of the community-built expectations and contexts that seem to be essential to this study.

Finally, the complexity of developing as a researcher has led to a paucity of explanation in the dynamics of research learning. It appeared from the preliminary and sometimes contradictory nature of the literature that it would be difficult to understand the detailed roles and relationships of the many forces that might challenge or support researchers' development. When I was considering theories, I felt that I would need one with multiple layers but some clarity of operationalization to help guide my analysis. Yet, much of practice theory is of a more philosophical nature, without specific operationalization of constructs. I identified one that I felt had a balance of complexity and clarity that might help me to untangle the many possible threads of librarians' research stories. Furthermore, that one theory has a focus on uncertainty and learning that seemed to suit this question well. And so, in this analysis I have chosen to apply Cultural-Historical Activity Theory (CHAT, or more informally, activity theory).

2.4.1 Origins and history of CHAT.

Activity theory went through several evolutions throughout the 20th century. Cultural-historical activity theory began in 1934 with Vygotsky and then developed and was popularized by his students Luria and, especially, Leont'ev who in 1978 took activity theory into adult as well as developmental psychology (Roth & Yew-Jin, 2007; T. D. Wilson, 2014). An essential

trait of CHAT as a theory is that it encourages the activity itself to be an analytical level, encompassing sub-activities and constructs that are traits of the activity or sub-activity. In CHAT, there is a separation between component actions and overall activities. Because complex activities are made up of many actions and each action has many influences, there are many ways for uncertainty to emerge and create challenges in trying to complete activities.

Since its very origins, CHAT has held that contextual *culture* and the developmental *history* of an agent have fundamental influence over that agent's activities. Sociocontextual factors are considered to be essentially entwined with the individual's behavior and development. Agency in activity theory is generally placed within the individual. However, collectives and groups also hold the agency to act and develop and learn, and many later applications of cultural-historical activity theory have placed the agency for development at the collective level (Engeström, 1999; Engeström & Glaveanu, 2012; Engeström & Kerosuo, 2007; Engeström, Kerosuo, & Kajamaa, 2007; Engeström et al., 1999).

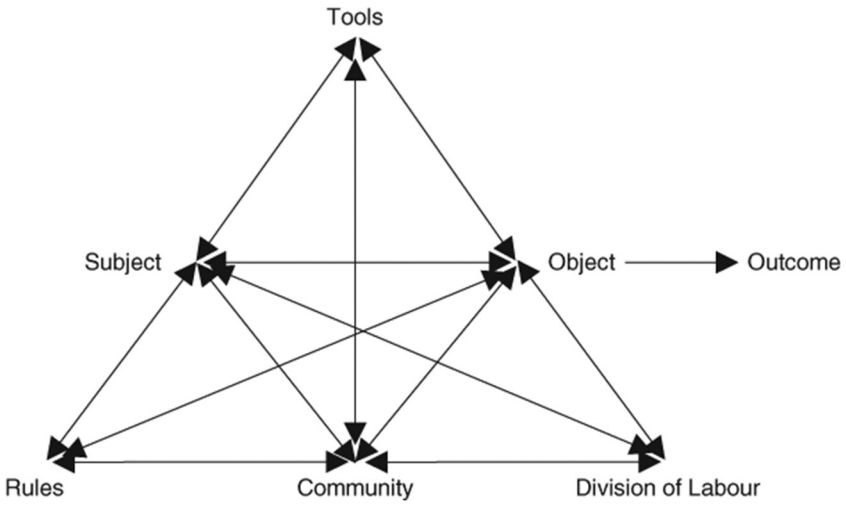
Activity theory has many different pieces and variants. The version that I use in this analysis is second-generation CHAT. The core of this approach to activity theory is seven interrelated constructs: a subject, an object, and a set of tools or instruments; plus norms/rules, community, and the division of labo(u)r; all of which lead together to an outcome. The interrelation of subject, tools (including intellectual tools such as language), and object was the original first-generation CHAT theory and still represents the critical analytical and conceptual core of activity theory. The addition of rules, community, and the division of labor represents second-generation CHAT (Engeström, 1999; Engeström et al., 1999; T. D. Wilson, 2014). This seven-construct model from second-generation CHAT has more explanatory power than the first-generation, three-construct model; it was expanded specifically to focus on

organizationally-contextualized activities. Second-generation CHAT is therefore the most relevant to librarians within their library contexts.

2.4.2 Constructs of CHAT.

At the heart of CHAT is an Activity. The Activity is a practice defined by those who do it; that is to say that it is active and it is recognized as a unit of activity or practice by the Subject and Community who engage in it. Each Activity is seen to be made up of seven constructs, seen in Figure 2.1. The seven constructs interrelate and interinfluence. The Object is particularly important because it drives the Activity, but all of the constructs influence and control the whole of the Activity.

Figure 2.1: Constructs of Second-Generation CHAT (Engestrom, 1999; Wilson, 2013)



2.4.2.1 Subject, Object, and Outcome.

At the core of the Activity as described by CHAT is the Subject – Object – Outcome relationship. The Subject is the actor (or acting community), the Object is the driving target of the activity, and actor and Object lead to the outcome or result which is intended (Engeström & Glaveanu, 2012; Engeström, Miettinen, & Punamäki, 1999; T. D. Wilson, 2014). In librarian

research, the Subject is an academic librarian and the Object is a research project or the driving target that the Subject defines the research Activity around. The Outcome of the research leads from the Object, and represents the more distal purpose of the Object.

Tools, Rules, Community, and the Division of Labor all influence and shape the subject, Object, and Activity overall. Mediation by tools of the Subject-Object relationship is a particular principle of CHAT, hearkening back to the Vygotskian origins of CHAT (T. D. Wilson, 2014). But all of the constructs influence the Subject and Object. In the Activity of research, the constructs have a variety of roles. They also influence and interact with each other.

2.4.2.2 Tools.

Tools are the physical or mental objects used to complete a task (Wilson, 2014). In the case of researcher-librarianship Tools might be surveys, interview recorders or chat platforms, statistical software, or other materials used in the process of collecting or analyzing data. The availability and options of Tools shape the activity, and may increase or limit the librarian's research ideas by offering or removing options for how to carry out the research activity.

Individually, researcher-librarians might use a variety of Tools for the stages of research activity. Both the conceptualization of a research idea and the literature review might involve searching databases and organizing the findings through systems like citation management tools. The breadth or narrowness of available resources for searching would have a noticeable impact on what is found in the search and, therefore, the concepts and gaps identified in the search. Resources such as books about how to align the research question or concept with the research design could also have an effect. And from word processing to submission systems, there are many Tools that affect the production and dissemination of research.

Collaborative work objects could also be important. These Tools may include cloud-based platforms such as Dropbox, Google Drive, and OneDrive. Means of communication are also possible collaborative platforms, such as video chat, phone, email, and instant messenger. More uncommon Tools such as shared brainstorming and shared literature review systems could also have a big impact on the librarian(s) doing research and the research being performed.

2.4.2.3 Rules.

Rules are the principles that control and direct an Activity (T. D. Wilson, 2014). Rules make themselves most evident among researcher-librarians in their control over extrinsic motivations: research requirements for tenure, reappointment, or promotion are the most obviously influential Rules. There are also Rules to how to conduct and disseminate good research such as guidelines for conducting meta-analyses, Rules for how to perform analyses or statistical tests, and Rules for how to write up and submit articles or presentations.

There are tacit Rules as well as explicit ones, such as informal organizational guidelines for how and when research should be embedded in the job. Even at the professional level, tacit Rules on the acceptability of "how we done good" reports as research have shifted and affected research expectations throughout the profession.

Rules similarly influence the subject and object, as well as the community. Community-related Rules for research include IRB training and procedures. These can influence the community relationships and roles, as well as the researcher's relationship with the research. Community-connected Rules also include travel and funding procedures, to name a few examples.

2.4.2.4 Division of labor.

Division of Labor is the way that the work of the Activity and of surrounding Activities is segmented (i.e. divided); this Division can be across persons, resources, component tasks, elements of the Object, or any other compartmentalization that the Activity must be split across (Engeström, Miettinen, & Punamäki,1999). One can see the influences from Marxist thought through Vygotsky and subsequent thinkers in the importance of the distribution of tasks and resources. Because an Activity must be active – mentally or physically – there is some work or forward momentum involved in the system. Because Activities are complex, the Activity has component tasks. The Object has component elements of physical or mental product; the Subject has only so many resources of time to dedicate to various Object components and Activity subtasks. Subjects can be teams instead of individuals, and must then divide time and work among multiple people as well. With many potential layers of complexity, the distribution and logistics of dividing the work of an Activity can become quite intricate and have considerable implications about techniques and feasibility in Activities, as well as power and resource implications.

The Division of Labor in the library affects the position of the research in the librarian's larger work duties. It also affects the roles and expectations of community members such as supervisors and library administrators, as well as the departmental organization. These affect the researcher-librarian's professional work most of all, but because practitioner-researchers' research is embedded in practice those Divisions of Labor also affect their research. In addition, the Division of research-connected Labors – such as assessment – within the library affects access to peer support. Finally, researchers may work in teams with colleagues. Colleagues

might be fellow librarians, faculty, or student research assistants. The Division of Labor within research teams also affect the activity, subject, object, and community.

2.4.2.5 Community.

The Community is the larger group of people engaged with the Subject and Object, but not directly involved in this Activity (T. D. Wilson, 2014). They could be engaged in a similar Activity or in another Activity that connects with this Activity, or they could be connected to the Activity only through the Subject and/or Object. The Community influences and is influenced by the Subject and Object just like the other constructs. It also influences and is influenced by Tools, Rules, and the Division of Labor. That gives it a more complex position and set of relationships than less central constructs.

Community could include both the library and the larger campus Community. It could also include the profession as a whole, such as colleagues at conferences or neighboring institutions as well as librarians who consume the results of research. Community can also include the non-academic Community, particularly through friends and family. The breadth of the Community around a given librarian seems likely to have a large influence on their research. A librarian's connections within the library, campus, and peers have effects on their research activities. The knowledge and suggestions available – or unavailable – are closely connected to the shape of the activity.

2.4.3 Analytical concerns of CHAT.

Understanding these six ideas as applied to librarians' research provides a framework for looking at the overall research activity as performed by librarians. Understanding the relationships and influences that each of these constructs has on each other could especially lead to insights into how librarians do research. In particular, tensions in these relationships – and

strategies to address these tensions – can be valuable ways to identify challenges to academic librarians' research competency development. Tensions in and between parts of the activity often lead to contradictions in the activity and its context (T. D. Wilson, 2014). Some of this is due to the inherent capitalist tensions between the value of activities for their direct usefulness and the value of activities for exchange (Engeström & Glaveanu, 2012). Research as an idealized practice for academic librarians is a perfect example of this contradiction of values: the use-value of research is in its creation of evidence to improve services, but the exchange-value lies in the benefits that the prestige of faculty status brings to librarians and especially to the library. Other contradictions and tensions may point to issues and challenges that affect the activity and larger context of academic librarian research.

CHAT also has a particularly important feature for this study. Development, on individual and organizational levels, is an essential part of CHAT. This draws from the Vygoskian psychological and educational school, but is applied to adult learning and learning by organizations (Engeström & Glaveanu, 2012; Engeström & Kerosuo, 2007; Engeström et al., 2007). The CHAT conceptualization of development draws directly from the Vygotskian idea of the "Zone of Proximal Development." Similar to many information-seeking concepts, this idea posits that there is a point in learning when the learner is uncertain about the immediate future in their learning and activity processes. The uncertainty is profound, in that its bounds, duration, and sometimes even where to start on it are all uncertain together. By navigating this immediate uncertainty, the learner develops. If s/he fails to navigate it, s/he also fails to develop. All of the aspects of the activity – Subject, Object, Tools, Rules, Community, and Labor – influence the learner's ability to move through the uncertainty towards the desired outcome. This multifaceted set of influences means that successful development can require a complex synthesis of many

different issues, including internal, external, and object-oriented aspects of the uncertainty. This parallels remarkably well with studies in formal research education that have shown a complex synthesis through experience is essential to research success (Gardner, 2008; Kiley, 2009; Kiley & Wisker, 2009; Trafford & Leshem, 2009). CHAT's conceptualization of development provides a particularly valuable way to look at research competency development, as well as focusing on several constructs and relationships that can be expected to inform this study. CHAT therefore provides a good guide for interviews and analyses of research competency development.

2.4.4 CHAT and Known Researcher-Librarian Supports and Challenges.

A few systematic reviews have looked across articles and discussions of librarians' research contexts (e.g. Booth, 2011; Hoffmann et al., 2015). Although the studies that these reviews cover are mostly localized, the reviews help to combine them into a broader view. Booth (2011) focuses on barriers, while Hoffmann et al. (2015) focuses on supports. These provide a source of possible supports and barriers to consider. Looking at these from an activity theory perspective helps frame some of the known possibilities, as background to my study.

Table 2.1: Alignments of known supports and barriers with CHAT constructs

Construct	Supports and Barriers
Subject	Supports: Hoffmann et al. (2015) categorize several supports as *individual attributes* (p. 20) that are relevant to the subject, including: • Academic rank • Demographics • Education and experience • Personality traits • Professional commitment to research Barriers (Booth, 2011) • Professional characteristics (p. 5) • Need for skills/training (p. 5) • Need for education (p. 5) • Communication barriers (p. 6)

	• Language/cultural barriers (especially for non-English speaking librarians) (p. 6)

Object	Supports
	None relevant to this construct
	Barriers (Booth, 2011): These are debatably object barriers or possibly tool barriers
	• Limitations of the evidence base (p. 4)
	• Inappropriate orientation of research (p. 5)
	• The following two may not be part of the research activity at all, but rather part of a separate activity in practice. In EBLIP, because the object of the research activity becomes a tool for the practice activity, it is difficult to separate some activities
	  o Pace of change (p. 6)
	  o Limitations of EBLIP (p. 6)

Tools	Supports (Hoffmann et al., 2015, p. 20) • Access to and use of resources in terms of equipment and funds Barriers (Booth, 2011) • Lack of financial resources, in terms of tools those resources might buy (p. 4) • Lack of infrastructure in terms of databases, journals, data systems (p. 4) • Poor access to evidence base (pp. 4-5)
Rules	Supports (Hoffmann et al., 2015, p. 20) • Extrinsic motivations such as a requirement to publish (other extrinsic motivations may be rules or may be outcomes of the activity) • Positive organizational climate in terms of research being valued by the organization and in some cases a culture of research • Some aspects of time, such as autonomy over work schedule and the availability of release time Barriers (Booth, 2011) • Lack of financial resources, in terms of rules restricting research funding (p. 4)
Division of Labor	Supports (Hoffmann et al., 2015, p. 20) • Access to and use of resources in terms of staff support • Some aspects of time, such as balance between responsibilities Barriers (Booth, 2011) • Lack of time (p. 4)

	• Lack of infrastructure, in terms of staffing levels and support skills (p. 4)
Community	Hoffmann et al. (2015) categorize several supports under *peers and community* (p. 20) that would fall under this construct, including: • Collaboration • "Community," including: professional associations; research networks; socialization • Guidance and support from editors • Impact of family and personal relationships • Mentoring • Peer support They further categorize several supports as *institutional structures/supports* (p. 20), the following of which would fall under this construct: • Department/institution qualities • Positive organizational climate in terms of supportive leadership and in some cases a culture of research Barriers (Booth, 2011) • Lack of organizational support (p. 4) • Lack of research culture (p. 5) • Leadership (p. 6)

2.5 Conclusions from the Literature

Some things are clear from the literature. Motivation is a complex matter, with studies supporting both intrinsic and extrinsic elements affecting research productivity (Blackburn & Lawrence, 1995; Carole J. Bland et al., 2005; Fennewald, 2008). There is a complex range of challenges and supports that interweave to affect research in academic libraries (Booth, 2011; Hoffmann et al., 2015).

There is also a sense of "becoming a researcher" that represents the identity formation and confidence built by navigating the uncertainties and transition from wanting to research to accomplishing research (Brancolini et al., 2014; Gardner, 2008; Hemmings & Kay, 2010). Research involves more than just a single skill but an entire suite of both core and supporting skills (Kiley & Wisker, 2009; L'Association Pour l'Emploi des Cadres & Deloitte Consulting,

2010; Vitae, 2010). This complexity adds layers to the challenge of becoming a researcher in academic libraries (Booth, 2011; Lamothe, 2012; Schrimsher & Northrup, 2013). However, the context in which librarians work has an enormous impact on their success (Fennewald, 2008; Hoffmann et al., 2015). So does the internal motivation of the researcher (Blackburn & Lawrence, 1995; Fennewald, 2008). So there is considerably more to librarians' developing the needed competencies to perform research than coursework or policies alone can make. The activity of research is complicated, and so are the attendant needs of the researchers.

This leads to a need for closer examination of the experiences and processes involved in researcher competency development. Both librarians and libraries need more idea of what is being faced in the process of researching. This gap should be filled in order to inform professional and organizational policies. It is also an important gap to address for helping librarians and departments to make decisions about processes and activities.

2.6 The Research Question

The literature establishes that many researchers face many challenges and uncertainties in developing into competent researchers. It furthermore shows that the library profession continues to face challenges in knowing how to support academic librarians when they are expected to research. Despite the continued expectation of research productivity, librarians report challenges to research success. Certain forms of support have been shown broadly to relate to productivity in specific situations, but even then it is not known why some supports are associated with greater productivity while others are not. We cannot explain the successful supports that the literature does identify, because the profession lacks any study of the experience of navigating research uncertainty as a librarian.

These factors from the literature led to the central question: How do academic librarians develop competencies necessary for success in their initial efforts to do research? Based on this question combined with the responses and experiences of the participants, two subquestions emerged: (SQ_1) how do academic librarians experience their early research projects, and (SQ_2) what personal attributes and contextual factors help academic librarians succeed in their research?

CHAPTER 3: METHODS

Learning and development depends heavily on the developing researcher-librarian's psychological development, and because this is such a new area of study it is important to understand the personal experience of these researcher-librarians. Researching personal experiences offers many challenges to the researcher. While various external measures can be taken, ultimately the only way to know the internal experiences of people is to ask them. For that, interviewing is a common and valuable technique.

Rubin and Rubin (2005) describe qualitative interviewing as an art that builds on human beings' natural inclination towards conversational interactions. Their approach emphasizes the interactions and naturalness of interviewing. An important part of this approach is that interviews are a formalized approach to a prosaic process. People talk to each other about their interests every day. It is an easily understood process, especially for the interviewee. Because conversing is so instinctive for people, many challenges in the art of the interview happen in the design and analysis phases rather than in data collection. There is an art to listening to and encouraging the interviewee - or conversational partner - that is being interviewed. But the act of talking is often an easy act for research participants.

Research interviews are a flexible approach, and they aim to reveal personal subjective experiences. There are many procedural and analytical implications to the flexibility, personalness, and subjectivity of these revelations. Flexibility means that there are many ways to perform interviews, so the researcher must plan in advance how best to interview in a way that supports the research question. The personal nature of interviews leads to both interpersonal and

ethical implications for research interviewers. And while subjectivity is a valuable trait of interviews, it also means that researchers must consider that subjectivity when they are analyzing interviews.

This study used interview methods, balancing subjective points of view with triangulation of the data by interviewing multiple librarians with different perspectives. Site visits focused around primary interviewees, with secondary interviews and focus groups at the site to give a more rounded view of the development and organizational context. In addition, further source triangulation by looking at documents and artifacts about research helped give a less subjective, more policy-centered, view of the research context.

3.1 Participants

Participation centered around a primary participant-interviewee, with secondary interviews and site visits held around those interviews. Recruitment started with the primary interviewees, soliciting particularly for those with one to two completed (i.e., published or presented) research projects behind them. For the organizational context around the primary interviewee, I also interviewed a supervisor upstream from the primary interviewee. For comparison with the primary interviewee, I solicited other librarians among their peers. To reflect the development of competencies over time, the peer interviewees were at different points in their research experience from the primary interviewee. I had different interview processes for the peer interviewees based on whether they had more or less research experience.

Primary interview participants were solicited via librarian mailing lists in East Coast states, for ease of access. Snowball sampling by asking librarians to forward the solicitation e-mail to colleagues was also used. The email solicitation is available in Appendix A, and the screening survey for suitability is in Appendix B.

Interviewees were librarians who had at least one supervisor and at least one peer interested in being interviewed. The screener was used to select a range of librarians in terms of how much research they had done already, where they were located, and what type of institution they were at in terms of size and the Carnegie Classification in place in 2016 and 2017 (the time of data collection).

The site visits were planned and organized by e-mail, choosing a day when all of the interviewees were available on the same day (to reduce costs as well as limit interviewees' risk of talking about the experience and unconsciously adjusting their unvarnished reactions based on what they hear others say). The primary interviewees were asked for policy and guidance documents while I was there, and when possible we met in their workspace so we could refer directly to their tools, arrangements, and processes.

The initial recruitment was targeted towards new researchers and explicitly recruited only librarians who had done one to two studies, but respondents with distinctly more research did appear. In those cases, I asked whether the experienced respondent could refer me to a colleague with fewer studies behind them. In those cases, the initial respondent became a senior (more experienced) peer interviewee.

There was some variation in how participants defines "a study," with some primary interviewees turning out to have datasets with multiple analytical passes and resulting associated findings. I used a loose view of what "a study" was, aiming for a single data collection process regardless of how many analytical results might come from it. Therefore, generally the focus stayed on interviewees (and their sites) with one or two completed data collection processes, regardless of how many analyses or products they made out of it. This posed a risk of having a large dataset with several significantly different analyses, which could mark a much more mature

researcher. However, this did not turn out to be a problem. Some participants had more than two publications, but none had completed more than two data collection processes.

In addition to interviews, a focus group was held at the one site with a large, active research support group. It had been hoped that more research support groups might be active at the visited sites. Regretfully, only one had an established support group, with another attempting to navigate the process of creating a research/writing support group.

Six core sites were visited, with three to five interviews per site (one primary, one or more peers, and one supervisor). Site interviews were held during August, 2016 through January, 2017. In total, 21 interviews and one focus group were held. Carnegie classifications Research University - Very High Research Activity (R1), Doctoral (R3), Masters Medium Programs (M2), and Baccalaureate Arts & Sciences Focus were represented. An aim was to interview at sites with a range of different levels of research expectations. The result was one site with full tenured faculty status, three sites with faculty rank and status in a formalized form with equivalent documentation, governance, and some employment assurances but no formal "tenure," and two sites without faculty titles but with research expectations similar to faculty and an informally-equivalent rank review process and participation in campus governance alongside the faculty.

3.2 Site Visits

At the site visits, the primary interview was held first in most cases. Arranging the primary interview first helped to keep the focus on the core interviewee that defined the center of the site-visit interview cluster. When possible, another discussion to check back with the primary interviewee was held at the end of the visit, to get clarification on any points that may have come up and ask about their future plans as they moved towards being experienced researchers

Before beginning any interviews, the meeting with the primary interviewee started with a casual chance to get to know each other. This pre-interview discussion generally included seeing the layout of the library, discussing the interviewee's librarian duties, and sharing information on my own library and position. In part, the purpose was to get a sense of the interviewee as a person and the library as an environment. In addition, it gave an opportunity to build rapport and establish a conversational relationship with the primary interviewee. Conversational flow and rapport are both essential to interview success (Rubin & Rubin). The more unfamiliar the library was, the more important this pre-interview stage was for me to understand their context.

3.3 The Primary Interview

The primary interviews were the longest, ranging from 1.5 to two hours plus a possible brief checking-back interview at the end of the day. To start each interview, I obtained the participants' written consent, explained the research, and confirmed permission to record. Although all of these things had been explained before, the question was included as a convention to remind the interviewee of his or her rights, as well as make a sense of formal transition to the interview.

Usually interviews are best held in a comfortable but neutral place (Rubin & Rubin, 2005). However, in this case the librarian's office or workspace was helpful so that s/he could show the processes and tools s/he uses during research. Therefore, when possible the interviews were held in the (less neutral) librarian's workspace. In four of the six primary interviews, we were able to use the primary interviewee's office for the core interview; in the other two we used a neutral conference room.

Interview questions started with discussing the participant's current or most recent research project. I asked them to show me some of their process if possible, and share documents

or guidelines if they had not already. The interview then transitioned to the historical context of their trajectory as researchers from past to present. I then asked about specific supports and challenges, with framing drawn from CHAT constructs and interests. The instrument of interview questions and optional sub-questions is listed in Appendix C.

At the end of the primary interview I asked whether or not we could meet again for an end-of-visit mini-interview. Then I went to a neutral area to change recording memory cards for privacy – and when time allowed also to take notes – before the next interview. Recording SD cards were changed out and stored in a small lock-box to protect confidentiality since supervisors and supervisees were both being interviewed. Four primary interviewees shared further ideas at this point. The end-of-visit mini-interview was mostly unstructured check with the interviewee to see if new thoughts had occurred to them since the main interview. In two cases I also asked whether the interviewee was involved with library groups or events that had come up in other interviews, to get broader perspectives on the roles of those communities.

3.4 Secondary Interviews

Ideally, peer interviews came next, then the supervisor interview later. My concern was that going directly from the primary librarian to her or his supervisor might create a sense of unease, as if rushing from someone to report to their boss. I thought that a bit of time to settle in and separate the supervisor interview in time from the others might be needed to make it more comfortable. In fact, the interviewees generally scheduled things however fit their schedules and the librarians showed no concern about the transition to supervisor discussions. One supervisor asked in detail about confidentiality practices, and we worked together to ensure that recordings were paused or deleted before transcription in any case of individually-identifiable details. All

other interviewees spoke quite candidly, and were either comfortable with or wryly accepting of the idea that supervisors and supervisees might have critical comments to make.

3.4.1 Peer Interviews.

The peer interviews were conducted with librarians of similar rank to the primary interviewee. They targeted either more or less experienced researchers, avoiding similarly-experienced peers when possible. The peer interviews were a way to compare the primary interviewee's experiences with the research experiences of librarians in the same context but at different stages in their research progression. They also enriched the view of the overall Community of librarian-researchers. There were two peer interview scenarios: peers who do research and peers who do not do research (or do not yet).

3.4.1.1 Researcher peers.

Interviews with peers who have done research followed the main schedule of questions as the primary interview schedule (see Appendix C) from the transition script onward. The request to see the workspace and research activity artifacts was skipped, going straight from "Can you tell me about your research?" to "How is your research going?" To abbreviate the interview, fewer prompts were used to expand the discussion.

There were multiple reasons to have a comparative perspective on researcher-librarians who are in the same context but a different stage of developing their researcher competencies. Of course it gave more information generally and also allowed triangulation by source with a different lived experience, but it also allowed stagewise comparisons to understand the effect of the flow of time. Comparing different stages of experience and competency development gave richer perspective on the interaction of personal attributes and development trajectories over time, within similar contexts. While this was not relevant to all parts of the analysis, in several

cases the varying levels of experience allowed me to compare perspectives and build more sense of evolution in the researchers' development. Being able to specify whether quotes were from novice, junior, or senior researchers also helped clarify the analytical write-up.

3.4.1.2 Non-researcher peers.

Non-researcher peers were peers who were deliberately not doing research. These provided the value of contrast with the primary interviewee, within the same context. Non-researcher peers are an especially important perspective. They helped show more clearly the challenges facing academic librarians, and they represented a counterfactual case of why research is less important or less motivating. Unfortunately, there were only 2 non-researcher peers available. This might have been due to embarrassment on the parts of non-researchers, or it might have been that I failed to fully express the value of non-researchers to a study on doing research. I asked them about their challenges and concerns about doing research, and discussed what kinds of concerns were preventing them from doing research at this point. The non-researcher interview instrument is in Appendix D.

3.4.2 Supervisor interviews.

A secondary interview was conducted with the primary interviewee's supervisor. If the direct supervisor was unavailable, another organizationally-upstream individual was interviewed. The idea was that this was less desirable because they would be less directly involved in the context of the research. However, more mid-sized and moderately small libraries responded than expected, with relatively flat structures. This meant that half of the primary interviewees reported to the Dean or Director of the library. This provided an unexpectedly rich view of the history of rank/status/parity among researcher-librarians. However, it may have limited how much the

supervisor knew about consequences of research to the day-to-day, procedural operations of the library.

A supervisor interview was essential for getting a well-rounded perspective on the researcher's context. It gave a different view of the Rules, Community, and Division of Labor (such as other demands on the primary librarian's time). It was also essential for understanding the organizational value placed on research and costs of research, and broader contexts around the primary researcher's development. Without the supervisor interviews, I would have only had librarians' guesses about administrative rationale for supports and expectations. That would have been too limiting to the contextual perspective.

Caution in the supervisor interviews had to be used in order to help protect the privacy of all interviewees. Negative statements about the supervisor or negative statements about the employee could have been made, so precautions were taken to prevent accidental disclosure. On site, each recordings' SD card were taken out and put in a small lock-box before going to the next interview. This was to prevent risk of accidental sharing of the recordings while working with the recorder (which has a playback function), and prevent any fear from interviewees that others might be tempted to try to listen to recordings. During the write-up, I also took precautions to prevent accidental indirect disclosure of negative statements by specific librarians or supervisors. Therefore, I sometimes aggregated multiple perspectives about the supervisor-librarian relationship into one more general statement. Other times I abstracted statements into granular, relatively unidentifiable pieces of information. Essentially, I separated or combined negative comments so that they should not pose a risk to the ones who said them. While this reduced the trustworthiness of the project because the analyses are less rich, the ethics are more important. Furthermore, all sites voiced much greater sense of support than criticism. Librarians

and supervisors generally shared similar concerns about needs for more support. Nevertheless, for privacy these precautions have been taken to prevent identifying statements that might color librarian-supervisor interactions if individuals were identifiable.

One of the advantages of having so many points of view was to help reduce bias. Another advantage was triangulation, to clarify points in the analysis. A third advantage was wider perspectives on the research process and how it is affected by the organizational context. The supervisory view of the benefits and costs for the organization often differed from the individual librarians' views. This balance in perspective enriched the contextual view of challenges and benefits. These differences were often about small details, historical perspective, or nuance; despite being small they still provided a great view of the community dynamic and organizational interests and concerns.

Supervisor interviews focused on both the individual researcher and the organization as a whole. Discussion moved towards the organization view in the actual interviews. Supervisors were asked about their perspectives on the role and impact of research in the library, how the organization tried to support research, and what challenges they perceived for librarians and the library as an organization on the issue of research. The schedule of supervisor questions and optional sub-questions is listed in Appendix E.

Supervisor interviews helped understand the organization's view of challenges and support efforts, as well as the organizational costs and benefits of research. In addition, while the influence of the organization on the developing researcher-librarian is important, that influence goes two ways. To understand the support and development context, knowing how researchers influence their organization was necessary.

3.5 Focus group

A focus group was carried out at the one site with a writing group for formally sharing concerns and ideas about research. At that site, the focus group was held after the core interview and supervisor's interview, but before the peer interviews. This schedule was based on practical matters of availability. The focus group was made up of a blend of both supervisory and non-supervisory librarians; as with the interview schedules, there was no concern expressed about supervisors being involved even when librarians were discussing their frustrations.

The focus group helped me to see the interactions between the participants, which helped me understand community relationships as well as bring out themes that might be intimidating in one-on-one settings (as per Barbour, 2007). Focus group questions were relatively broad questions about why they researched, how research was carried out in the library, the challenges of research, and what research supports they felt were important. The focus group instrument was shorter with general prompts to encourage more open-ended discussion, appended as Appendix F.

3.6 Data Analysis

Transcription was done by an experienced research transcriptionist. I then reviewed the transcripts for clarity and to change words that had been transcribed incorrectly because of profession-specific terminology. Both inductive and deductive approaches were valuable for this analysis. The goal was to balance the structure and relative unbiasedness of a set theory with the unique insights that come from allowing concepts to emerge from within a thick description. Because there is relatively little known, the emergent ideas were critical. However, because the research process is known to be frustrating and intense, allowing the narrative to fully drive the

findings would have been a poor idea. I hope that taking both inductive and deductive passes through the transcripts has led to a more balanced model.

I used RQDA (Huang, 2016) versions 0.2-5 and 0.2-8 to code, memo, and reduce data. Coding was done at the sentence level for all interview transcripts and documents with an added pass at response level for interviews. The sentence level allows each idea or reflected act to be examined in itself and with its neighboring ideas. Because of the clustering of sentence ideas by response topics, many of the responses were coded for the overall CHAT themes. But the sentence level was most valuable for the inductive passes.

Smaller units than sentences were not considered valuable, because deconstruction of unrecognized subtleties is not an especial goal of the analysis. Larger groups of sentences were often coded in overlap with the individual sentences, however, because activities are made up of several interrelated tasks and concepts. Areas of overlap or adjacency were helpful in highlighting interrelationships.

The inductive passes assigned *in vivo* codes based on interviewees' own descriptions of lived experiences and ways of doing. By using these codes, the analysis incorporated the perspective and experiences of the developing researcher-librarians. This reflects the inner experience of the librarian, in order to understand the individual perspective. This more naturalistic view helped to ground the analysis in the real lived experiences of the developing researchers and their colleagues.

The deductive coding assigned broader codes based on the CHAT constructs. By using the deductive approach, concepts that might not have been inductively evident from the participants' wording were identified and brought to the fore. The interrelationships within the

theory provide direction to understanding the interrelationships in the data. This view of interrelationships and inter-influences was a way to search for hidden flows within the activity.

After some experimentation, I discovered that it worked best for me to do a complete inductive pass, then a complete deductive pass over each site's transcripts. After all sites were coded both ways, I then did another complete inductive pass to add and refine codes that had emerged through reflection and memoing from the longer view of the whole dataset. During writing, I also found myself taking some shorter passes through select parts of the data to apply codes as writing brought new insights to me.

Once codes were assigned, the next step was to examine the codes in order to identify those that recur and combine them into common concepts (Charmaz, 2006; Firmin, 2008; Rubin & Rubin, 2005). Codes and concepts were reductively synthesized along common qualities, in order to begin building categories and themes. This is when the internal experience from inductive coding and the individual-contextual view from Activity Theory began to come together. The reduced codes were aligned with the Activity Theory constructs, based mainly on where the longer deductively-coded passages intersected with shorter inductively-coded segments. My goal was to create a bridge between the theoretically-informed categories and the naturalistically-informed thick description. This gave me the beginning of a full view of the researcher competency development experience, tying the activity level to the everyday perspectives of librarians. The connection of Activity Theory and naturalistic experience was intended to build trustworthiness and transferability, as well as making the results more understandable and usable at the professional level.

From there, further reduction with the added lens of the theoretical constructs brought the themes into focus. Reducing to themes was the goal of the analysis, in order to build a model.

While the constructs of CHAT provided a backbone to the analysis, themes that either influenced the main constructs or interacted with the inter-construct relationships emerged. The model-building also reorganized the themes, so that they reflected the pragmatic experiences and practices of the interviewees. My hope was that the reorganization would create a model that practitioners could relate to, in a way that led directly to potential questions to ask practitioners. This was intended to make the model more functional as a basis for future generalizable quantitative studies.

Auditable trails from participant experiences to themes are critical to keep the activity-experience connection clear. The RQDA software was used to maintain codes connected to their transcripts. RQDA *Code Categories* and *Memo* functions were used to collect and annotate reduced codes, themes, and constructs. Analytical views were drawn from memos as well as coded text, and then expanded on during the writing process to develop the final analysis.

When writing the analysis, in some cases participants' negative experiences were aggregated or decontextualized so that there is no risk of negative views being individually identifiable. But other discussions of the themes were elaborated on by selectively using the participants' own words to clearly illustrate the lived experience of developing into a competent researcher-librarian. Using quotes as thick description to illustrate analytical meaning is one of the greatest values of in-depth interview data. It helps interested librarians to understand the true experience of competency development. In addition, it helps them to judge the transferability of the findings. The richness of the quotes should help readers to see which areas resonate with their own context and experience, versus those that do not.

Diagrams and tables were used to organize and communicate the themes more clearly. Since the main CHAT constructs each had several sub-themes emerge, I used tables to clarify

connections between themes and codes within each construct. That way, readers can see how the codes relate to the themes, and can also understand the reductive relationships more easily. An overall diagram was used to illustrate the themes-to-constructs relationships within the context of the classic CHAT construct diagram. Tables and diagrams were a way for me to organize and consider the analysis in a different way, and for the reader to get a feel for the analysis before getting into the weeds of the analytical narrative. Diagramming helped both for thinking in a different way about the relationships between themes and in expressing it in a different way.

3.7 Researcher Perspective and Biases

Because the researcher/analyst is the instrument of analysis in qualitative methods, trustworthiness should be established. Researcher trustworthiness is essential to the interview and analytical process (Charmaz, 2006; Rubin & Rubin, 2005). One important part of this is sharing biases and perspectives held by the researcher/analyst/author so that they can be taken into account when evaluating the conclusions drawn by the researcher.

I believe that research is difficult, that it requires time to develop, and that high-quality research lends value and insight to the practice of librarianship. I do not, in fact, believe that being a researcher is essential to the practice of academic librarianship. While faculty status and the skills that come with research can both lend to the reputation and status of a library, I do not believe that all academic librarians must be required to do research. However, I do strongly believe that, if an organization is going to require research productivity of its librarians, then support must be given to those librarians. I consider providing support equal to expectations to be a matter of social justice in employment.

There is a division between the reputation and legitimacy-oriented organizational-status gains from having research performed in libraries and the task-oriented day-to-day practice of

librarians performing their core jobs. This kind of separation is an example of loose coupling between legitimacy needs and technical core functions (Orton & Weick, 1990). Sometimes this scenario occurs throughout a university campus as a consequence of academic drift, affecting teaching faculty and others - such as librarians - throughout the university. It is not always a deliberate choice of the library as an organization. But when a situation like this arises, where the organizational legitimacy-building adds idiosyncratic role demands to the core employees, supports are needed to ensure employee success. There is a frustrating possibility that academic librarians may be required to perform research with little background, little training, and little support. A situation like that strikes me as untenable. In some libraries there is neither the expertise to mentor librarians in research nor the knowledge of how to start a research support program without one. I have known academic librarians who deliberately planned to take any new job they could find every time they reached five years of work, specifically to avoid tenure requirements. A situation like that strikes me as unjust to the librarians and harmful to the library. That is part of the impetus that made me interested in this area of research: working towards ways that academic libraries can identify research barriers and implement supports for librarians facing those barriers.

That is my strongest bias. I firmly believe that, if a library - by choice or by campus pressures - requires librarians to perform research, then they owe those librarians research support. To fail to even attempt to create supports for research after requiring research is unjust. It does a great disservice to the library, the librarians, and the profession as a whole. Most academic libraries do not deliberately avoid creating supports, though. I believe there are two key factors that cause these unsupportive situations: (1) lack of awareness of the frustrations faced by librarians and (2) the lack of a toolkit to address those frustrations. Without such a

toolkit, libraries may not have the ability to support their librarians. An administrator can only guess at what the best ways to implement support might be, and a librarian can only try to muddle through despite not knowing much about research. That is my motivation, and my perspective. I attempt to temper my sense of injustice with the firm belief that library leaders want to support their librarians but simply do not know how. That could, in itself, create another bias. During this project I tried to use clear reporting of these tensions in order to minimize my own biases affecting the data and findings. Fortunately, the sites I visited expressed concerns but not the intense sense of untenable research frustration that I have sometimes heard voiced in professional meetings.

CHAPTER 4: FINDINGS AND DISCUSSION

Research experiences across participants varied widely. However, there were commonalities which led to distinct themes. The themes from the 21 interviews, one focus group, and site documents have been coded, reduced inductively from codes, and then aligned deductively with the theoretical constructs defined in Cultural-Historical Activity Theory [CHAT]. Themes are first presented construct by construct and then described in more detail. The descriptions include selected quotes from site visit transcripts to illustrate interviewees' perspectives.

One issue that arose in both discussion and analysis was that the word *research* covers many things. It can be used for the Activity, the Object(s), and various components that go into the larger work involved. Participants used the word research in many ways. The most problematic is the use of *research* for both the Activity of doing research and various end components such as findings and products. In chapters 4 and 5, I will therefore attempt to use the word *researching* when I am specifically talking about the Activity as a whole, and *research product* or other combinations of research and another word when I am talking about specific tangible objects or discrete intellectual components.

4.1 Organization and Summary of Analysis

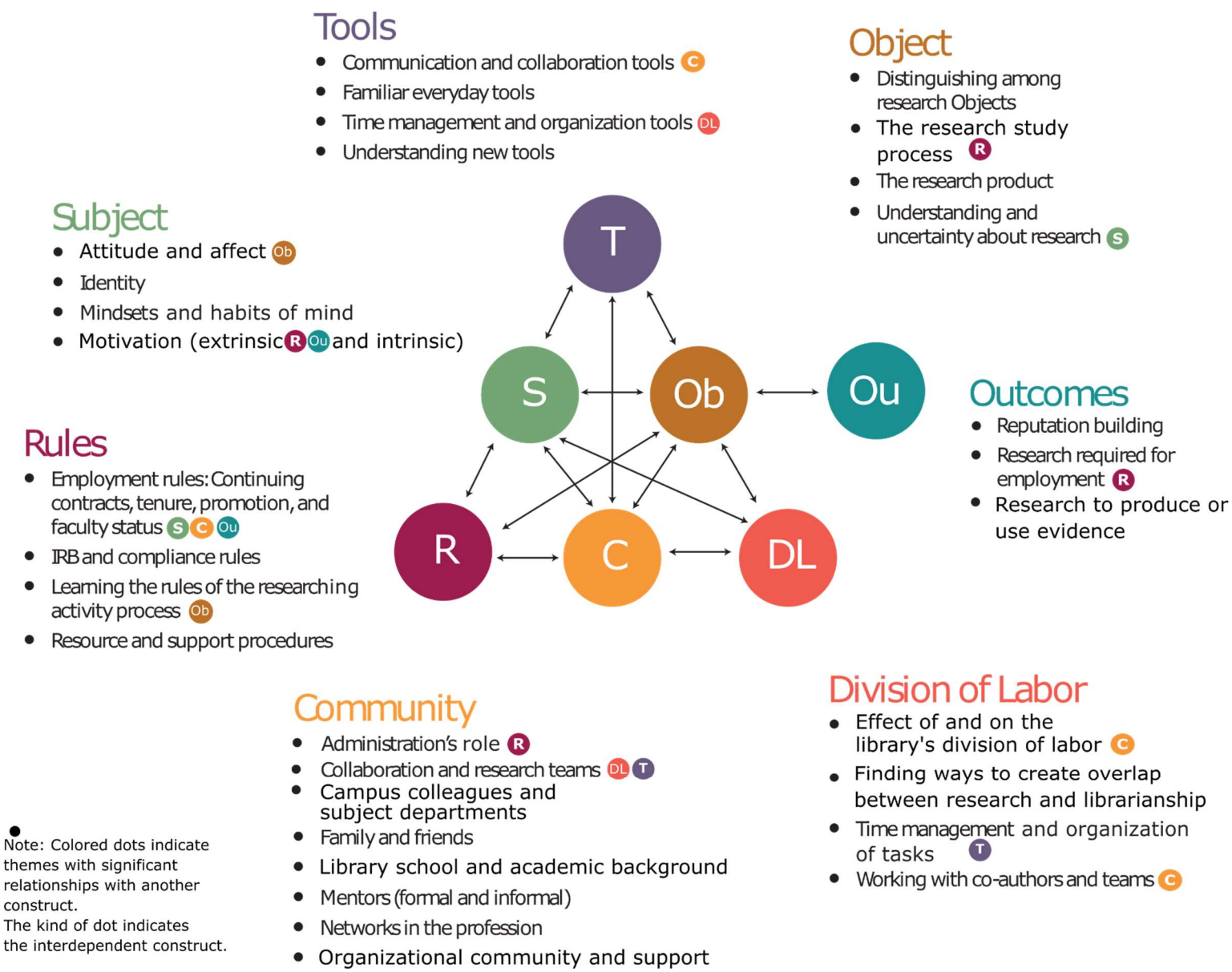
Findings are organized using Cultural-Historical Activity Theory [CHAT]. There are seven sections, each one covering one of the seven CHAT constructs. The sections are ordered: Subject, Object, Tools, Rules, Division of Labor, Community, and Outcome. This order was partially arbitrary, in that Subject and Object were placed at the start, and Outcome at the end,

but the other four are in no set order. Throughout the text of these sections, the capitalization of CHAT construct names is used only when referring to the construct in a primarily conceptual sense, rather than in daily operation. The rationale for that is that many of these examples (such as using tools or following rules) are synthesized from an intersection of the language of the interviewees in the context of the interviews, and do not necessarily reflect a construct abstraction. These may hint at a broader theoretical idea, but I do not feel that the data is nuanced enough to separate the practical ideas of application from more abstract representations of the constructs.

Each section presents the construct and then subdivides the section into themes. A summary of themes and exemplar codes is presented at the start of each construct to demonstrate how the *in vivo* codes relate to the themes and the associated construct. Because of the use of *in vivo* phrasing, some codes have bracketed annotations about the meaning of the code. Because of the interrelated nature of Activity Theory constructs, I did not treat the themes as mutually exclusive during thematic reduction. Instead, where codes co-occurred across two or more themes, that indicated an interrelationship.

Bringing inductive and deductive analyses together at the start of each section should help clarify the full line of analysis, supporting researcher-as-instrument trustworthiness. To complete this line of reasoning, I present first a summary (Figure 4.1) showing the themes as they relate to the complete Activity diagram. This diagram uses the classic CHAT diagram of constructs, and I have added the themes from this analysis. My hope is that this diagram allows readers to come to their own further conclusions about the themes and construct relationships.

Figure 4.1: Summary of themes and constructs in the researching activity



4.2 Subject: The Emerging Researcher-Librarian

The Subject is the actor who engages in an Activity. Subject themes in the activity of researching describe the psychological being of the academic librarian who is doing and developing in the Activity of researching. I use the term researcher-librarian but sites used a range of terms including librarian scholar, scholar librarian, and faculty librarian. What makes these academic librarians different from others in the field is a personal or organizational expectation to produce research-based or inquiry-based scholarly products.

Themes for the Subject construct relate to how the Subject is described, by themselves or by their colleagues and supervisor. Subject themes are predominantly psychological and behavioral factors such as identity, emotions, knowledge, and habits. In CHAT, as with other Vygotskian schools of thought, the state of the Subject is considered to be deeply connected to their development through an Activity. This view is also consistent with the body of literature connecting subject states such as identity and motivation to research productivity (e.g. Blackburn & Lawrence, 1995; Bland et al., 2005). The nature, thoughts, and feelings of the Subject provide a starting place for understanding how librarians conceptualize and experience what a researcher is personally.

In this section I describe themes that describe the Subject: interviewees and colleagues of interviewees who are academic librarians doing research. The section starts with Table 4.1, which summarizes the themes about the Subject and lists codes that make up each theme. These codes are presented both as examples of the themes and to show the chain of reductive analysis. After Table 4.1, a narrative describes each theme and some relevant subthemes and dimensions within themes, along with illustrative quotes from study participants.

Table 4.1: Themes and example codes for the Subject construct

Theme		Exemplar codes
Attitude and affect [interrelates with the theme "Understanding and uncertainty about research' in the Object construct]		• Avoiding assumptions about research • Avoiding research • Being uncomfortable • Committing to do research • Disliking research
Identity		• Being part-way to being a "real" researcher • Doing it [research] over and over • Feeling like I'll be a researcher some day • Gaining experience • Starting out as [the junior] part of a team
Mindset and habits of mind; Strategic mindset		• Being accountable to yourself and partners • Intellectual curiosity • Determination • Mileage • Mindfulness • Momentum • Needing to have/build underlying skills • Thinking forward
Motivation	Extrinsic motivation to do research [interrelates with the "Employment rules" theme in the Rules construct]	• Changing P&T • Faculty status • Self-development for future employment • Tenure
	Intrinsic motivation to do research	• Being excited about finding answers • Creating evidence to benefit practice • Enjoying the discovery process

4.2.1 Subject - Attitude and affect: Librarian feelings towards research.

Interviewees' beliefs and feelings – attitudes and affect – towards research shape their confidence, motivation, and so much more. A passion for research can support the Subject achieving research development goals. As one administrator said of their library's strongest researcher, "[S]he loves doing it, so she didn't need anybody to help her along" (C3). An

experienced peer interviewee recommended "building on those good feelings" (E5) after any success to help move forward with research.

On the other hand, some participants thought that librarians who fear research also believe that research is an insurmountable challenge. A Subject's emotions towards research can stand in the way of working on developing research competencies. As was mentioned in the focus group, "There are barriers other than knowledge, like fear. Fear of asking a question about it, or fear of the publishing process" (EF).

Attitudes also spill over and impact participants' contexts. Group enthusiasm and positivity about research were able to help build hope in even the most uncertain new librarian; an interviewee new to research said, "I was uncomfortable with it but they [i.e., other librarians] are very supportive" (F3). Conversely, feelings of fear or an attitude of acceptance towards mediocre research might also spill over into participants' contexts. In this way, personal feelings about research not only can impact the Subject librarian who has them; they can also shape the organization-wide view of research and thereby impact the success of research programs throughout the library. As one supervisor said when discussing how to promote research, "It really is going to depend on the culture of the institution where you're going to approach it" (C3).

The majority of the interviewees indicated that their libraries valued and encouraged research, although the level of appreciation varied across the sites. "I'm grateful that I'm at an institution that supports the research," said interviewee E5, which also implies that they believed that other institutions might not be so supportive. However, all of these sites had successful researchers for me to recruit to this study. Therefore, one might expect them to be pro-research environments. Despite current positive feelings, interviewees said that past colleagues at that site

had felt extreme dislike – specifically fear and uncertainty rather than hostility -- towards research.

The idea that appreciative environments still have members with extreme dislike towards research shows that there is an interaction of positive and negative feelings among colleagues. This interaction implies that, in order to create a community of support and feelings of hope, ways to foster positivity in some librarians must be found, as well as ways to encourage propagation and sharing of that positivity as widely as possible. So it appears that the impact of a *sense* of potential for success should not be underestimated in building librarians' positive feelings towards research. Without a sense of positivity and potential, librarians could develop uncertainty and even fear instead.

4.2.1.1 Subject attitude and affect – Research fear, discomfort, and uncertainty.

Interviewees believed that research intimidates many librarians. Some supervisor interviewees mentioned past librarians who had been so fearful of research that the idea of doing research created stress and negativity whenever the topic came up; some of these intimidated colleagues were said to be so fearful that the supervisor felt that fear drove them to leave before they would have otherwise. Some non-supervisor interviewees said they believed that their colleagues who were uncertain about research tended to do just enough to meet contractual requirements, and then stop. One interviewee mentioned a librarian who said of the job requirement for research, "I just can't" (C3). So there appears to be some group of librarians with strong negative feelings towards and beliefs about research. Some interviewees also suggested the profession may have a widespread feeling of apathy towards research. One put this as, "If I had to put a percentage on it… 20% of librarians I know really do it because they love it, and the

other 80% just do it because they're required to do it" (E1). Another stated that they're doing it under duress.

Some interviewees said they know librarians who actively believe that research is separate from librarianship and feel that jobs which require research are less desirable, or less focused on 'true' librarianship. As one interviewee said,

> [T]here's people who say. 'Hmm. research, this isn't why I went into librarianship, right, I'm all about public services, let's say. And so they will shy away from jobs that have a research requirement or component. And I think that that's, you know, I consider myself a very service oriented person, librarian, but that doesn't mean that should mean that I think research doesn't have any value or that you know it's an unreasonable expectation or requirement for an institution. So don't discount things that have a research component even if you think that you are not a researcher. (A2)

Almost every stage of the research process, from conception through writing, can be a source of intimidation. Quantitative method design seems to be particularly frightening to many librarians, but even the use of qualitative methods become uncomfortable when the idea of writing up the results for publication arises. Even though a librarian may have learned the necessary skills through undergraduate statistics and master's methods classes, they often lack the familiarity with how to apply them in an actual research situation, leading to poor methodological confidence.

One source of fear interviewees described is that they worry that they do not know how to conduct research. One interviewee said, "I would consider myself one of those librarians who was not prepared to conduct research" (E2). Another said of an early project they tried, "I just didn't know what to do with the data" (E1). They stated that they started out with very little methodological confidence or certainty about how to proceed, and as a result they ran into a wall.

Research fear can arise even before trying to do research. When thinking about a work environment, fear of inadequacy in research competence could make someone feel unfit to even

attempt to work in a library that expects research. As one interviewee said, "[T]hat was one of the intimidating things about coming into a job that, like, you're working with a bunch of people who publish all the time…should I have come into this job, like, knowing how to write for an academic journal?" (F3). That interviewee stated that they had thought very seriously about avoiding the job, based on their sense of research incompetence. This shows how fear can lead to a problematic level of uncertainty about research capabilities, which has the possibility of affecting more than just a given research task.

4.2.2 Subject - Identity.

The participants have varying levels of researcher identity. Interviewees described various stages of identifying as a researcher. One described this movement towards researcher identity as,

> "The librarian that I was when I started this job two or three and a half years ago was a lot less knowledgeable about research than I am now, so I've definitely grown a lot. Although I still feel I have quite a bit to go and it's just really going to take doing projects over and over and doing more projects to get more comfortable with the projects. And maybe by the time I get ready to retire I'll feel comfortable like a researcher and then I'll retire" (E1).

I interpret the quote above to mean that the journey to researcher identity is long enough that for librarians, it may take a whole career before they feel like they have mastered it. I also take it to imply that high achievement in research was seen by this interviewee as a career pinnacle. The sense of growth over time mirrors discussions in researcher development about encouraging the formation of a professional identity among research faculty (see 2.3.3.1 above and Evans, 2009, 2012). However, the idea of research as a very late pinnacle to a researcher-librarian's career is different than when a faculty researcher might be expected to achieve that identity.

As the preceding quote shows, identity as a researcher depends for the participants on research success; researcher identity also feeds their research success. This may be the simplest but most psychologically-insightful finding of this study. For those who see themselves on a continuum towards researcher identity, the full identity of being a researcher cannot be attained without completing research activity. Until a research study has been produced, librarians do not feel like researchers. Completing one study and publishing or presenting it made people feel like "more of a researcher than I was" (F1) or like "at least a part time researcher" (A1), but often not completely like researchers. Multiply-published senior peers did feel like researchers; sometimes they also felt like any other faculty researcher and other times like a uniquely librarianesque sort of researcher.

It was not enough to be well-read on methods or to be well-respected as an instructor on resources and information within the research process. Completing the authentic process was necessary to build researcher identity. Completing the process multiple times was necessary to reach a full researcher identity, and only senior peer interviewees would say definitively that they are researchers.

Individual capacity appears to play a role in identity. Co-authoring helps build the early stages for some participants. But there is a tension between the need for assistance and the sense of ability to do it on one's own. Several early-stage researcher interviewees found that the ability to lean on another's expertise was essential to getting started, and after a partnered research project, they felt more like researchers. But the dependence on another to complete the authentic process also created a barrier to the realness of their identity. As one core interviewee with one study completed said,

> [I]t's one of those things you need to know you can do. I think to some degree everybody needs to know that they can accomplish a research project by

> themselves. Once you have that confidence then I think you're better. I mean, not to say that you can't get some of that confidence working with somebody the first time. But at some point in those first few years I think you're doing yourself a huge favor if you can accomplish that. Some kind of research project on your own, regardless of whether that's a requirement based on your tenure committee or your institution or whatever. I think just for your own personal growth I think it's something that you need to know you can do. And then you know you can do it with other people if you can do it by yourself. Then working in a group really should not be a problem because you're going to know what people, what individuals will be contributing to the whole. And I think you would need to know what you need to contribute to that too. (C1)

Building a sense of independent identity as a researcher does not require being entirely on one's own. Having a mentor works well for the participants; some described their experiences in a way that indicated a subtle sense of difference between going to a mentor for specific questions and dividing the project with a teammate. Likewise, having a discussion group to gather feedback and input is something even the best-established independent senior researchers valued. Being a sole author means that one has managed to personally work through every part of the research process, not that there was no external help. For some participants, this represented a valuable extra step in building the sense of personal researcher identity.

As participants' identities as researchers grows, the new identity changes how they think about research. So not only does research change their identities, identity changes their research. This change has parallels in the faculty development literature, which shows that faculty with researcher identities produce research more sustainably (see 2.3.3.2 above and Cusick, 2015). In interviewees, this effect from identity back to research represents a change in worldview and thought process. Interviewees suggested that research changes the researcher in more ways than just those elements of self-confidence and identity as a researcher. They described beginning to see researchable questions that can make everyday work projects into research projects. As one senior researcher-librarian said, "Yeah, particularly if people are doing a good project that's

interesting and could contribute to knowledge in the field, you know. I'm going to tell them to present it at least" (EF). This changes their generation of research ideas from a stage of research to an everyday thought process that makes every question of practice into a potential research project.

Researcher identity also appears to communicate itself to other researchers. There is something ineffably different about how the established researcher-librarian participants interact with other researchers. As one supervisor said of a prolific researcher-librarian, "[I]t's not like she has to say, 'I have a Ph.D., folks,' it's nothing like that. It's just they understand very quickly in talking to her that she understands the things that they're dealing with for themselves" (C3). This instinctive level of researcher identity develops gradually over time working through research issues.

4.2.2.1 Subject identity – History and the flow of time.

In Cultural-Historical Activity Theory, the culture and history elements show the importance of historical background and cultural context in shaping Community and, especially, the Subject. The flow of time affects research skills by growing or reducing them. Keeping in practice performing research over time grows librarians' identities as researchers. When a librarian stops producing research, their researcher identity wanes. One interviewee felt like a researcher in the past after finishing a big Master's research project, but after having done fewer research projects now feels like a "part-time" researcher (A1). On the other hand, many believed that when they left their Master's studies they had no sense of being a researcher, and that they gained some of that after having completed a study. No early career (i.e., with 1-3 studies completed) researcher-librarians expressed a sense of fully being a researcher in the interviews.

Interviewees' shifts in identity appear to be gradual over time. The identity grows best for these interviewees after they successfully navigate the uncertainties of a research project, complete it, and write up the findings. Successes appear to solidify their identity as a researcher. But leaving research activity entirely appears to risk allowing Subject's researcher identity to disappear.

4.2.3 Subject - Mindsets and habits of mind: Thinking about research.

In CHAT, how the Subject thinks about their activities impacts work habits and workflow management. I use the term mindset, in this case, to describe interviewees' intellectual approach towards research, which also connects to emotional attitudes (discussed in 4.2.1). I use the phrase habits of mind, in this case, to mean *routines within* the intellectual approach such as regular ways of thinking about the idea of research. This is similar to attitudes, but seems to be a more deliberately held and cultivated aspect of the interviewees' thoughts. Intellectual practices like mindsets and habits of thought often framed a participant's capacity to develop competencies. There are many habits of mind that appear to support their successful development through research uncertainties. Some specific habits of mind that were helpful to them include mindfulness about research feelings, monitoring personal momentum, and approaching projects with strategic thinking about research productivity (4.2.3.2, 4.2.3.3, and 4.2.3.4 below). Cultivating these habits of mind may help uncertain librarians navigate their development of research competencies. These supportive mental habits or mindsets offer ideas on the psychological underpinnings to successful development despite not being research competencies themselves.

4.2.3.1 Subject mindset – Hiring for mindset: The search for potential researchers.

If the library is going to build a culture of research, it must deliberately work towards that goal. Part of that is developing the librarians (Subjects) that are in place, but supervisors also want to hire the right librarians. Some supervisors interviewed spoke about the importance of searching for librarians who had a strong potential to become good researchers.

Libraries could attempt to hire only proven researchers, but that is often not practical. In many academic libraries, research capability may be a necessity but not the first priority, so it would have to take a back seat to recruiting librarians who are prepared for day-to-day tasks. For entry-level positions it is especially impractical, for obvious reasons. Supervisor participants felt that neglecting research readiness is unacceptable if research is a mandate for renewal and/or tenure, even though other skills were more important in hiring. One supervisor pointed out that the tenure track means having to think about all potential hires with tenure in mind: "Think of it as a tenure process, not just when they walk in the door the first day but literally when they apply, you know, so you don't find yourself in a situation of, oh crap what do we do now because we've got somebody who doesn't make tenure. That is not where I want to be, so thinking of the tenure process as being from the application process forward all the way through tenure" (F2).

These supervisors voiced a vested interest in identifying potential researcher-librarians before they develop proven researcher skills and identity. One said they looked for interviewees that could "convince me that they want to do it, that they have the intellectual curiosity that's going to lead them and be successful" (B3). One supervisor felt that writing skills were an essential starting place: "As long as someone is a decent writer to begin with then once they come in we've got the supports…[on the other hand] if you can't write a good cover letter then

you're probably not going to make it here" (F2). Another described the essential role of motivation and a willingness to work on learning to research regardless of starting skill level: "Some people are very interested in pursuing research; others are not. And so it's kind of getting people at the right level of motivation and how do you do that" (E2). So even if the potential hire is completely unconfident in research, interviewees believed that they had potential to succeed if they are aware of the challenges and willing to start thinking about the issue. The motivation of a librarian to at least try to conduct research, combined with supervisors' willingness to communicate clearly and provide guidance alongside expectations, is seen to create a foundation for librarians at these sites that leads to success over time. In addition, early cultivation of good mental habits prepares the librarian for future development as a researcher-librarian.

4.2.3.2 Subject mindset – Mindfulness.

The broadest supportive habit of mind that emerged in interviews is mindfulness. Mindfulness means thinking about and being aware (or mindful) of one's own feelings, thoughts, and activities. It is the metacognitive practice of thinking about one's own mental state. Mindfulness generally could be something in any part of a Subject's life. Research-specific mindfulness, however, is a mental practice recommended by some interviewees, meaning deliberate self-awareness and reflecting on oneself during research.

Some participants used mindfulness to monitor their feelings about research and help manage research fear. One interviewee recommended yoga and mindful breathing to help face research stress (C1). Being mindful of one's thoughts and feelings allows the librarian to stop when fear begins to build and take action to reduce that anxiety. So, a librarian who is starting to research should be mindful of themselves and use that to notice and control negative reactions. Another interviewee described this as, "Don't listen to the voice inside your head that's saying,

'Oh my God, there's too much to do, this will never be right'" (E5). This strategy of perceiving and managing one's negativity reduces personal psychological barriers to research, which in turn allows these interviewees to concentrate on navigating their uncertainties with less distraction from purely emotional reactions.

Another type of mindfulness relates partly to the Subject and partly to the Division of Labor within research and librarianship. In particular, time management and activity organization both have to do with how the Subject thinks about the Division of Labor. So they lie along the interrelationship of these two CHAT constructs. Time was perhaps the single most common challenge expressed across all interviews (see also 4.5.4 below). While time management does not create more time for participants, it helps them take what time there is and get more done with it.

Time management for some interviewees starts with keeping research in mind; one described this as, "Find the time. And then, if you have the time, you're like, 'Oh, I should write something today!' You have to be in the right frame of mind, or at least I do" (F3). Participants mentioned being aware of the flow of work, pacing of personal and organizational time, and time needs. For example, thinking about one's individual labor or work habits can help because research feels so hard to start and to incorporate into the day. If one knows that the morning (or afternoon) is when they focus best, they should write then and avoid getting distracted by email: "In terms of time of day, I always write at night. I know some people that wake up at the crack of dawn, other people who will budget themselves 30 minutes a day or an hour a day" (D4). In other words, a librarian can also use mindfulness to put research and writing where it matches well with their own thoughts and energy. This is consistent with research in productivity, which

shows that peoples' productivity changes over the day and that there are peak times for different kinds of productivity such as creative work versus detail work (Pink, 2018; Pope, 2016)

Similarly, being mindful of the organizational workflow and division of labor is also important. This means thinking about the flow of busy versus quiet times librarywide: "you know not to plan to be able to write a chapter in January because you'll have six students who need several hours each to make their exam lists…the first semester I worked here I hadn't got the rhythm down yet so I was not prepared for the grad students staying on campus for the break" (D4). This mindfulness about time creates a valuable foundation for time management, allowing time management strategies to be more effective. This mindful awareness of time, combined with an appropriately organized project structure, also helps participants keep research manageable and promote maintaining momentum.

4.2.3.3 Subject mindset – Momentum and progress.

Successful researchers among interviewees had personal ways and were supported by organizational ways of promoting steady research progress, which I will call maintaining momentum on research. These librarians needed to manage multiple commitments, and this risked taking time and attention away from research projects. When this happened, they forgot where they were. One interviewee described this as, "What happens is you often have breaks between sessions spent working on a project and that can kind of derail any momentum you have going" (A2). This momentum is similar to the concept of researcher vitality (see 2.3.3.1 above), but instead of a career-span challenge it is a concern in each individual project. If momentum is drained away into other projects, the research will not happen and there is a serious risk that no research will ever arise to replace it.

This loss of momentum is compounded for some interviewees, unlike their perceptions of colleagues among disciplinary faculty, because they never expected to be researchers. So in addition to the problems of multiple obligations, many also feel fatigued from the research itself. As one interviewee said, "I think a lot of people I've talked to, you hit the wall because you're so tired from working on the project, you can't get it done" (E5).

The most rapid-moving and productive researchers have developed ways to maintain the momentum of their research projects. One way to maintain momentum is to maintain accountability to co-authors and supervisors. Another is personal strategies of time and task organization.

Accountability strategies depend on having someone that the researcher feels responsible to answer to, and possibly who can provide input and feedback. Co-author accountability was the most effective strategy used by interviewees. Several mentioned the value of holding coordinating meetings, passing ideas back and forth, and having shared deadlines. As one said, "A key thing about all of my research projects, I'm not going to do it by myself… I need somebody else to be pushing me about getting it done" (A1). Supervisors where research was mandated also checked in with librarians about progress, and felt that for many that helped them to stay on track. However, some felt that it created more of a sense of uncomfortable pressure than positive accountability. Co-authoring participants felt it brought the advantages of community support, as well as creating a push forward towards shared goals through reminders, a shared timeline, and shared organization of tasks. This helps them to maintain their momentum.

Even with accountability, there still needs to be time to do the research and realistic goals for what can be done in that time. Timelines and organization of tasks emerged as valuable

individual strategies as well. These participant comments led me to the conclusion that, although time management and task organization are not generally listed as research skills, perhaps they really should be. In an environment with many conflicting demands on time, managing priorities and organizing tasks are essential skills. While mindfulness of activity patterns is a necessary part of that, there are additional strategies that may be useful.

Especially for librarians who would rather get their research done during the normal work-week, time must be allotted and guarded, and an organized plan is needed to maximize the use of that time. One librarian said a top tip for new researcher-librarians was "helping them with time management and encouraging them to literally block things off on their schedule on their calendar to take the time" (A3). Another suggested, "[P]oint out the big stuff that you have to accomplish and then what you need to do to get to those milestones, so what are the smaller steps" (C2). This maximizes the effectiveness of their time by breaking things into those smaller steps that are a size that can be done in the time available. Self-monitoring of momentum and slumps for participants using these strategies did focus, not on guilt for non-progress, but on identifying the problem and thinking about what to do to reorganize the project into a manageable form.

4.2.3.4 Subject mindset – Strategic thinking about research.

Finally, successful researchers among the interviewees cultivate a strategic mindset around how they think about their research. There are two important strategic aspects to consider: mileage and scope.

The concept of "mileage" was introduced by one interviewee as a key skill their mentor had introduced them to. Getting the right mileage meant, to them, that a single research project

represents a strategy of developing several products, with each product having its own role in the expression of the larger research project.

> One of the things I learned is that it's not just writing an article, it's that this process leads you to a presentation and it leads you to an article, it might lead you to a panel so you can dine on one idea pretty well. … You have to do this balance of getting good mileage out of this versus padding. But that was something I hadn't even thought about before being involved in this process. This product that you've made isn't just here, you can do other things with it. (B1)

Judging the appropriate "mileage" (in other words, items for the curriculum vita [CV]) for each study means that these participants consider how projects can turn into multiple viable publications and presentations. It also means that each has an effective role – as opposed to "padding" or falsely inflating the products of a research study – in the overall totality of the research project. One important strategy is thinking about how to use posters or presentations in advance, before trying to write an article or book. Not only does this yield more "mileage" per study, it also helps to organize a study and get feedback from presentation attendees. Participants believed this was a mindset that had to be learned and cultivated, because it combines how they think about their research plans with an expert knowledge of the scholarly communication process.

Scoping how many findings and associated final articles should reasonably be created from one study is the second important strategy that participants described. Depending on the size of the study and the participant's analytical comfort, a study may have several parts to write up or several analytical lenses to use on the same data. This leads to multiple research objects.

This is another strategy that participants stated was easiest to learn from experienced senior researchers. As one interviewee said,

> [My mentor is] really good if you're starting out with a project, kind of helping you determine is this one paper or two papers, or maybe three papers. … Is there enough information that one of your publications could be a lit review, then what

> you do with that information can be a separate project? … I think you can end up taking on too much without realizing that you have set yourself up with this humungous thing … [so] pick like two or three things you want to say with this, then take this idea, expand on it, let it develop into something else, you take the next step and the next article. (C1)

This kind of strategic thinking about how much to put into each given project and product and ways to get more mileage from a study, helps interviewees feel that the study was more rewarding. Building a bigger CV is both personally rewarding (see 4.8.1.2, Personal reputation, below) and leads to recognition from and for the organization. It also helps interviewees not take on too much with a given goal, keeping each product and research question fit to a manageable size. They describe the most prolific researcher-librarians they know as having a consistent habit of stopping to think about the best strategy for each publication. So, internalizing this strategic view of research may in some way tie to or reflect development towards later stages of researcher expertise or researcher identity. In addition, because more mileage means more final products and recognition, there may also be a connection between strategic thinking and participants' ability to maintain motivation.

4.2.4 Subject - Motivation.

Motivation to do research – or at least to work towards developing needed skills and attempting researching – is critical. As addressed in the literature review, much of the existing discussion on research productivity centers on motivation to conduct research. The first approaches to studying faculty research looked at the importance of intrinsic motivation for research productivity, which has continued to be a theme in faculty development (as discussed in 2.3.2).

Interviewees felt there were two camps of motivation about librarian research: those who did not want to conduct research unless forced, and those who saw research as its own benefit. As one junior peer interviewee said:

> I think to a certain extent, it feels like it's two parts, that there's a group who does a lot of research and publishing and writing…. And all of them sort of do that research, live in that research world as well. But then there's another section of librarians, they don't get involved in academic publishing in any way, I don't think. And my guess is that's the same everywhere, you're going to find these two different communities, if you will, in a lot of libraries. And I think there's a push here - and I'm not on the inside to know this for sure - but it seems like there's a push to get more towards the academic side. To get more people publishing and make that, if not a requirement, a very much encouraged. And I'd like to see that happen. My hope is that I can sort of be a part of that at some point and contribute in some way even as a librarian working here kind of part time, encouraging that aspect. But I think there are people who are resistant to it, certainly, and I would guess that here as in anywhere there's going to be those two camps that you find. (E3)

If this interviewee's perceptions are correct then these two camps must have different motivations when they learn to do research. By the definitions of intrinsic versus extrinsic motivation, participants and colleagues who do not want to conduct research unless required to are motivated to learn research by extrinsic motivations; those who see research as inherently beneficial are intrinsically motivated or have both types of motivations. That means that on the one hand, extrinsic motivations could affect more librarians. Another interviewee posited that 80% of librarians they knew would only learn and do research when required to for their job. On the other hand, individuals with intrinsic and extrinsic motivation to succeed may have dual motivations and may therefore be much faster and more successful in developing into researchers.

Interviewees perceived an important difference between librarians' motivations and many disciplinary faculty members' motivations. Some interviewees felt there was no connection between librarianship and research. Others felt that there were structural ties between

librarianship and research, and that librarians were innately curious, but that those features of the profession did not mean that it was linked to research. Even interviewees who felt there was a very direct tie between their own research and their librarianship did not feel that librarianship was inherently linked with research. These interviewees believed that research benefits librarianship, but only certain library roles were said to be inherently linked with research. I was surprised by this perspective because I had encountered professional statements about the importance of research as a core librarian skill, and therefore assumed that researcher-librarians would perceive a link as well as a benefit between research and librarianship. However, participants did not believe in an innate link. That is quite different from the academy's view of disciplinary faculty: innate teachers and scholars. Therefore, the intrinsic motivation of someone trying to succeed as a librarian (even a faculty librarian) may be very different from faculty members. The implication is that academic libraries might not be able to simply follow other units' plans and examples in how to motivate their employees.

4.2.4.1 Subject motivation – Extrinsic motivators.

Extrinsic motivators are primarily organizational expectations of research productivity. Therefore, in CHAT an extrinsic motivator would have to represent an interrelation between the Subject and the Community constructs. Because it is extrinsic, the implication would be that there is an outside (extrinsic) pressure from the Community that influences and motivates the Subject. But in CHAT, influences are rarely unidirectional, so there may also be ways that the Subject as a community-member can either contribute to or push back on these types of motivators.

Extrinsic motivation for research was mentioned mostly in the context of library-wide and/or campus-level expectations. These expectations and motivators of research productivity

were said to exert pressure on librarians to produce acceptable research. Some sites required research for contract renewal; at other sites librarians are asked but not required to produce research, with research connected to promotion opportunities. Interviewees believed that, for librarians at many libraries, these kinds of employment requirements are a top motivator. This can be considered positive or negative. One interviewee described the promotion process in a positive way as, "the next stage of my own sort of vocational growth," (D2). Another said that they felt that, for many librarians, "they're kind of doing it under duress because that's the only way they get reappointment or retention" (A2).

However, research expectations do not appear to be absolutely effective as external motivators. Interviewees described colleague librarians who seemed to feel troubling levels of tension between research expectations and research uncertainty. Interviewee supervisors described concerns about how to strike a balance between encouraging productivity and over-pressuring employees. As one said, "It is still a struggle not so much for me [as the supervisor], but there still is that tension for the librarians about how they're going to do that, how they're going to incorporate research and publication or presentation or other demonstration of scholarly activity" (C3). Their experiences had been that too much sense of pressure to do research could have counterproductive effects. Thus, both librarians and supervisors become caught in tensions around extrinsically-motivated research.

Tenure, promotion, and continuous appointments that mandate research were all mentioned as different forms of job-related extrinsic motivators. Mandates seem like simple, or at least straightforward, motivators: when research is required, if a librarian wants the job, then they will be motivated to do research. However, emphasizing negative consequences often creates hostility and backlash. Furthermore, it becomes more complicated if there is a strong

aversion to research. One interviewee mentioned that they nearly declined their job offer because it required research. Others talked about colleagues who left jobs after a few years in order to avoid research. Many interviewees talked about colleagues' intense fear and anxiety about the prospect of research. So there are complications in whether fear of job criticism or fear of research is more motivating in some environments. Regardless of comfort levels, when discussing reasons why they do research, participants usually discussed their research mandate as the first thing that comes to mind (see also 4.5.1 and 4.8.2, below).

In addition, research mandates sometimes come with higher status such as faculty rank. Rank can carry the perquisites of higher status, which provides a more reassuring and positive extrinsic motivation. One interviewee who was very intimidated by research also stated that they would not give up faculty status to avoid the research, and was determined to face the research to keep the status. So positive extrinsic motivators may accompany negative external motivators, and several respondents mentioned positive extrinsic motivations intertwined with their discussions of negative ones.

When discussing extrinsic motivation and employment, there is a secondary subtheme that supervisors and senior peers among interviewees mentioned: self-development for employability. Even if the current library does not mandate research, a future one might want it. Because research is valued at many academic libraries, these interviewees felt that evidence of the ability to publish and present strengthens a librarian's resume. Some interviewees, therefore, felt that research improved future employment opportunities. "I'd like to think that my publications at this point, I think I've got like four, will help me and all my service will help me if I do change jobs ever at any point, just like thinking down the road" (F1). Building a CV with strong research and scholarship is seen as important for employability and reputation. Improved

job prospects and external reputation can be very rewarding for some librarians. As one senior interviewee said,

> I sort of look at this as sort of the next stage of my own sort of vocational growth and so I do it. I don't really need to do it, but I sort of enjoy putting this together and updating my CV and putting the [research review for promotion] package together and really seeing, reading how my peers think of my work. And it allows me then the opportunity to showcase what I've done for my peers and that's fulfilling. (D2)

4.2.4.2 Subject motivation – Intrinsic motivators.

Intrinsic motivation is defined as motivation that comes from inside a person. In this context, intrinsic motivation means a personal internal drive to engage in research. These are those participants who feel that they would want to do research even if their workplace did not expect it. The love of research is its own reward. For example, one interviewee said, "I really enjoy writing, I really enjoy especially looking at archival material and finding those nuggets and realizing through several searches online and looking through scholarship that probably no one has ever quoted that particular thing before and to be the first to do that for me is such a joy" (D2). A different interviewee said, "It wouldn't matter to me if we were obligated or not, I would maintain the same level, I think" (D5).

While intrinsic motivation may be an important factor for success, interviewees did not present it as being sufficient. Interviewees made it clear that wanting to do research was not the same as doing research. One described a project they were passionate about with, "I'm excited about it -- I just can't get to it" (D2). Even passionate senior research-librarians among the participants described facing barriers to getting studies completed.

4.2.5 Summary: Subject

The Subject's psychology, in CHAT, is seen to provide the basis and guidance for both the Activity itself and the developmental process. Some themes of the Subject reflect what we

know from the literature, such as the importance of identity, affect, and motivation. All of these color the librarian's perception of and interactions with the other components and supports involved with researching. The balance of positive versus negative attitude and motivation towards research seems to also seriously affect forward progress towards the Object.

Mindsets and habits of mind were not themes that I had specifically expected. In retrospect they seem somewhat obvious, but I had not considered their potential importance as specific themes until they were highlighted by my interviewees' discussions. Thinking strategically about researching and being mindful of oneself in researching appear to be ways that a librarian can overcome internal barriers and also navigate certain contextual barriers. Moreover, the mindset of momentum and progress seems to be especially important as it harnesses the flow of time to push forwards towards the goal of the Object.

4.3 Object: Researching

The Object is the driving target of an Activity: the output or end towards which the Activity is directed. In this case, the Object is a target of researching activity. Yet, there appear to be two Objects that interviewees aimed at: an intellectual product and a physical product with different but overlapping meanings and paths. Ambiguous semantics happened repeatedly in conversing with interviewees and have led me to incorporate this dual Object(s) of the researching activity in the analysis and findings. For these participants, the Object or guiding target of research has two levels: the research **findings,** including the components necessary to find the knowledge product of meaningful results, and the components and tangible research **artifact** or physical product created as a result of the study. One might say that the precise aim of research is the completion of the study and identification of findings. However, when most interviewees discussed research it meant writing a research article (or producing some other

sharable scholarly product; see 4.3.1.1 below for more on types of scholarly products). Data collection for the purpose of the findings was mentioned in the context of library assessment, but findings were not in and of themselves discussed as an end of research. Interviewees talking about data collection and their research treated the research product as the endpoint and target of the project. Therefore, I am treating both (1) the completion of the *study* in order to answer a research question and (2) the completion of the *final artifact or product documenting the study* as facets of the Object. An interviewee expressed this connection in discussing their next steps in research planning:

> So my next steps have been and are narrowing down. This is in terms of publication -- I guess I should clarify that -- narrowing down journals and then yeah, narrowing down journals, researching those journals to see what has been in there, what it looks like in order to tailor what I'm doing to sort of fit that scope while just simultaneously continuing or starting my research, I guess I should say, since I've really been coming up with my ideas. So I guess two prong, like dealing with the publishing aspect of it in terms of finding a journal and contacting them, researching those journals, but continuing to actually work on my research. (E3)

Even with that distinction made, both the study and research-focused publishing/presenting were complex sub-activities. When I interviewed, I specified that "original" research was my interest. I mentioned specific types of dissemination products such as peer reviewed publications and national presentations. My core interviewees were always librarians who had specified in the screening process that they had completed one or two studies. Even with that level of specificity, the nature of the research of peer interviewees and colleagues discussed in the interviews varied wildly. The nature of the research discussed included library policy and information-seeking research, but also ranged from historical books to health behavior articles to algorithm development and benchmarking. Therefore, the coding for the Object, its definitions, its relationships with labor and organizational contexts, and other themes

about the Object were surprisingly varied. There is more to the word "research" than one word implies.

In this section I will present themes from participants' comments about the Objects they were pursuing or creating. I start by presenting the themes and select example codes that relate to each theme in Table 4.2. After the table, I will describe the themes and provide examples from interviewees' data.

Table 4.2: Themes and example codes for the Object construct

Theme	Exemplar codes
Distinguishing among research Objects	• Case studies • Distinguishing levels of publication • Finding different approaches to scholarship • Writing in subject disciplines

The research study process
[interrelates with the "Learning the Rules of the Research Process" theme in the Rules construct]
	• Exemplars of targeting the *findings* Object
	  ○ Identifying the issue I want to look at
	  ○ Working with the literature
	  ○ Choosing methodologies
	  ▪ Case studies/practitioner studies
	  ▪ Doing qualitative research
	  ▪ Doing quantitative research
	  ○ Gathering data and analyzing it
	• Exemplars of targeting the *artifact*/*product* Object
	  ○ Learning to structure an academic article
	  ○ Figuring out which audience you're talking to
	  ○ Responding to reviewers

Understanding and uncertainty about research Objects [interrelates with the "Attitude and Affect" theme in the Subject construct]	• Feeling a bit behind in rigor • Scoping to something manageable • Seeking feedback • Worrying the design isn't good enough

4.3.1 Object - Distinguishing among research Objects.

As already mentioned, the simplicity of the word research is deceptive. Many types of objects were discussed, but how broadly or narrowly the interviewees discussed research Objects

appeared to be highly influenced by the organizational context. When interviewees attempted to identify what exactly they mean by research, they often referred to library guidelines and promotion policies. Many of the issues around distinguishing Objects lie along the interface of the Object with Rules about research. An interviewee at a library that only accepts articles and presentations might rarely discuss other artifacts of research. So at a site where the standards document said, "Candidates for reappointment, tenure, and promotion may demonstrate scholarly excellence in a number of different ways," interviewees discussed a wide range of scholarly products such as posters, books, archival work, and peer reviewed open-source programs. At another where the scholarly standards document said, "Candidates are expected to have produced a minimum of 3 peer reviewed journal articles," interviewees focused their discussion of research heavily on research for journal publication. As these examples show, there is an inter-influence effect between Objects and Rules for the participants when discussing how to distinguish the final artifacts created as research products. These distinctions about the final product then appear to exert influence on interviewees' views of the types of studies and activities that can go into the product. In the next subsections, I address first the tangible end output products and then the studies.

4.3.1.1 Object – Distinguishing output products.

There are several types of research products for dissemination, defined mainly by their own Rules and boundaries and the Rules of the disciplines they reflect. The most common research products in academic librarianship are peer reviewed journal articles, book chapters, conference presentations, and poster presentations. However, there can be a wide range of other disseminatable products depending on the professional specialty: books, archival exhibits and catalogs, policy reports, white papers, grant reports, published conference papers, and many

other formats that are relevant to libraries. In some ways these are final products in that they have a creation process that ends when the product is published or presented, but multiple so-called final dissemination products may emerge from a single study at different stages.

Many forms of these scholarly products were discussed other than the core interviewee's qualitative or quantitative study/ies for a peer reviewed presentation or journal article. Campuses and libraries that allow broader definitions of research/scholarship/creative activity demonstrated that librarians can be interested in an extremely broad range of these scholarly products. Interviewees at some sites said that subject liaison colleagues were allowed to create any scholarly or creative work that their subject area would create. Examples of expansive definitions of scholarly works included software programs, datasets, evidence-based learning modules, musical works, and far more.

Therefore, it appears that there are rules and cultural factors that differentiate among the tangible artifacts produced as research Objects. However, new librarians do not come to the job understanding these differences. As one core interviewee reflected of their first attempt at a journal article, "I had written before, professional columns. So for that [first study], I really sort of went about it on my own. Wrote a paper, submitted it to a journal. And had it rejected" (B1).

This shows how not understanding distinctions can pose a challenge when trying to change from one format to another. On the other hand, exploring distinctions between research products can also provide a way to face uncertainty about professional writing for those who lack that experience. New librarians may be unaware of narrower distinctions even within the library literature, such as edited columns within otherwise peer reviewed journals. Interviewees talked about the importance of knowing different products in their strategic thinking about research. As one senior peer said, "Be creative with your outlets, you know. There's other things you can do. I

just started with presentations, but … there are lots of different ways you can share that project before you get the final publication" (E5). Another had a similar view, and added that different formats can be used strategically, to explore and build writing experience and a larger corpus at the same time. "Try a report, or talk to people. Presentations first and then to articles. So one project could net different [items] that you can put on your vita." (B3) (see also 4.2.3.4 above).

4.3.1.2 Object – Case studies as a form of practice-based research.

We already know from the literature that there are many types of studies by librarians (Risso, 2016; Slutsky & Aytac, 2014). We know, too, from those and other articles that in addition to overall methodological distinctions, there is an implicit valuing system in the field. The implicit valuing creates a sense that weaker or less-rigorous studies are inherently lower-value studies. This valuing goes beyond whether peer review accepts the article. Much of this valuing centers around the use of case studies in academic library research.

The term "case study" as used by interviewees referred to descriptions of practices, setting, and results of a project (it refers neither to qualitative analysis with triangulation of multiple sources of data on a site case, nor to clinical case studies centered around a treatment case). On the one hand case study advantages include being perceived as less intimidating; simpler to write about; easier to incorporate into the job; and more pragmatic for use by fellow professionals in the field. Case studies are colloquially referred to as how-we-done-good studies and are often bemoaned in the literature of research in academic libraries. Case studies were described by the interviewees with terms like *just* case studies – the word *just* seeming to imply a low bar – or as different from deeper research. These types of case studies were the most common kind of practitioner scholarship discussed. Interviewees also mentioned evidence-based

practice and assessment-based articles. Interestingly, the concept of action research never arose despite the often-close ties between the educational field and the library field.

Because librarianship is a field of practice, reports of practice have a role in the field. The term "case study" may not be the best description for them, but the type of study and article seems to have a role. They are common in the literature. Interviewees who preferred more rigorous research also did write practice reports. Some even felt that reports of practice were better for certain librarians, whether as a point of entry or because they were more relevant. As one interviewee said when discussing how they approached coming up with a question or idea for a research project, they advised looking at concerns on the job:

> …a situation where it's not necessarily a survey type of thing. It's more a case study type of thing. So then when you're sort of preparing that for a certain publication or looking at publications it's like okay, you know, really a lot of what I'm doing is not necessarily scholarly research as much as it is practitioner based, or in some way evidence based. (C1)

This quote shows both a high personal valuing of practice-based research, but also a clear distinction between scholarly and practice-based research. It also implies that survey or other research the interviewee describes as scholarly might normally come to mind first. The sources of primacy and valuing of research objects may be a community-built attitude, coming from the site or the larger profession. Consideration of the community in attitudes towards research Objects is complex enough to deserve its own subsection next.

4.3.1.2.1 Object – Community-built attitudes towards study types and products.

Attitudes towards research distinctions tended to be similar among interviewees at a given site. Individual libraries have their own policies on what is considered a scholarly product worthy of credit towards tenure or reappointment on a contract. Among the six sites visited, this study saw six different sets of rules on accepting scholarly products. Policies on research output

ranged from very inclusive discussions on librarians' broad range of work, to more narrowly defined requirements for peer reviewed journal publications in specific fields. Presentations were sometimes counted with similar credit to articles, other times considered a completely separate category. A new librarian planning to produce research to meet extrinsic motivation *absolutely must* know their library and campus policies. Librarianship as a profession offers few definitions about what should or should not be credited as research results or products appropriate for promotion, tenure, or contractual renewal. Administrator interviewees who talked about creating these policies suggested that libraries should attempt to have rules that are visibly similar to those for other faculty on campus. As one library administrator said, "I wish we could come up with a plan that would perhaps recognize the unique nature of what librarians do, as opposed to the classroom faculty. But then the challenge is: if you aren't classroom faculty, if you're that different then maybe you can have your own requirements for this. But then you're not one of us" (C3). So pursuing faculty status may bring in campus-level distinctions and attitudes about scholarly products.

Interviewee attitudes towards the best type of study appear to be influenced by their institutional research output policies. The importance or unimportance of non-library subject-focused research coincided with document-based views of whether researching in a liaison or subject discipline was counted as library research. One interviewee alluded to the role of non-library research for disciplinary liaisons with, "If I'm a subject librarian, what are the questions I have around this subject area?" (E2). A more specific example was, "If [our music librarian] writes articles about librarianship or about music librarianship or about music … it's all relevant to the job here. It all contributes back here. It's good for [the librarian]. It's good for the

institution" (B3). At both of these sites, non-library research was allowed as evidence for evaluation of research productivity.

On the other hand, attitudes towards study-types were more complex and had a strong implicit component. The rigor and implicit value of certain types of research were voiced without being reflected in documents. Reports of practice (i.e., case studies) were particularly ambiguous. None of the documents specify that case-study-based research products were different from other products in their valuation, but interviewees showed a wider range of views. Some interviewees clearly distinguished between practice/experience-driven articles versus data-driven ones, such as, "That article was written largely from our experience, it wasn't really a research project" (A1), and "I haven't written anything in a while except some how-we-did-it things" (B3). The tone of these comments shows that pieces written from experience are seen, by these participants, as different. Saying "not really" or "nothing except" in these two quotes shows that there is an understood lesser status in play, whereas other interviewees saw a distinction but grouped experience reports as valid alternate forms of research:

> We are sharing information to people who are practicing. Like, they're doing research, but their research is a lot of times what works in practice. So I don't think there's anything wrong with that. I think that I'd be doing a lot more of that, like, here's what failed and here's what didn't. (F1).

These various interviewees have gathered a sense that there are distinctions among types of studies, but the different values are not consistent across participants. For some, the concept of research is inclusive of writing or sharing insights from practice. For others, research is more loosely coupled with practice and therefore distinct from writing about day-to-day practice. As mentioned in 4.3.1.2, some reports of practice are seen as lesser and there may be a sense of a need to justify their importance. Yet, unlike writing in nonlibrary disciplines, reports of practice were not singled-out in policy documents. But the lower valuing of them appeared at several

sites. This seems to indicate a widespread view of the standing of practice-based journal articles and practice-focused studies. Some of this valuing is explicitly discussed in the literature (e.g. Hildreth & Aytac, 2007) and the literature also discusses sources of rigor and disambiguates between data-focused reports of practice and anecdotal reports of practice; interviewees did not voice such a distinction. Furthermore, as none of the interviewees were doing research on librarians' research habits, it seems unlikely that they did extensive reading of the literature on trends in librarians' research. So I am left to wonder where these views come from. They appear to be implicit in the field, not coming from a formal source. It would be an interesting future study to attempt to find how this valuing is shared among the community of librarians.

Moving from study types to dissemination types, there were clear distinctions among research dissemination venues. Participants recognized and used conferences and journals focused on specific geographies (such as state library association journals and conferences) or roles within librarianship (such as the journal *Collection Building* or the Charleston Conference, both focused on collection development librarians). However, these smaller outlets were given less value, shown by statements like, "It's not on people's radar as a rigorous academic journal" (A1), or "it was sort of a minor thing for [a specialty conference]" (B1). On the other hand, participants also named some of the wider-circulation journals in the field and called them "real" (D2) journals or "a good journal" (A1). What makes these distinctions particularly stand out is that they did not align with any documentary distinction. I have heard anecdotally of libraries that use rankings to distinguish publications for promotion, tenure, or other contractual evaluation. However, none of the participating sites had such a distinction. There was no guidance indicating top journals or top conferences were required or emphasized in evaluation. Nevertheless, participants had a sense of important distinctions among outlets. One participant

who was intimidated by research nevertheless said that they would like to learn how to do research for high-ranked journals even though it was no different for evaluation: “It’s just like a prestige thing. Like I mean, I’ll be happy to be published in any journal. But to someday be published in the *Journal of Academic Librarianship* or something like that would be awesome” (F3). So in contradiction to the explicitly evaluation-tied differentiation of research output formats and use of nonlibrary disciplinary outlets, these differences in the valuing of library-focused conferences and journals seems to be connected to non-formalized socialization or professional values from the community.

4.3.2 Object - The research study process.

Researching is a process. Meaningful findings cannot be reached without following some systematic process with multiple stages and sub-aims within the process. How to navigate these stages varies from interviewee to interviewee, but an important part of the process for those who were making consistent progress was the use of a methodical system. Participants described different starting points and flows, but those that had completed research all mentioned there was a need for planning some sort of order, goals, and timing in order to get things done. As one junior peer just starting to conduct research described it, “I’m still trying to kind of learn the overall process of a research project from start to finish. What comes first and what comes next” (E1).

In the CHAT framework, Activities are made up of tasks and this complexity of having separate tasks which must be combined to complete an overall Activity is considered to be the source of uncertainty and of needing to use rules and a community in order to organize the division of labor needed to complete the target Object. But the Activities and Object that participants discuss under the concept of research is not always consistent or clear. As already

mentioned, the Object can be confounded between the target completing the study process to arrive at findings and the target of creating a research product. This confounding may contribute to interviewees' emphasis on the importance of having a plan, in order to clarify component tasks and tie tasks and supports together into a whole Activity.

The most-mentioned types of study Objects were uses of interviews and surveys to answer questions about patrons or about librarians. Specific research methods that were being used at sites included assessment of practice, focus groups, observation, bibliometrics, policy assessment, textual analysis of primary sources, and analysis of data from the integrated library system.

Some common concerns that arose around the research itself included creating and scoping the idea, carrying out the data collection and analysis in the correct manner, and balancing methods that were feasible with ones that were likely to get published, and the publication process itself. The presentation process was discussed in far less depth than the publication process, and appeared to create less uncertainty. Conferences were mentioned as a less time-consuming alternative for research dissemination: "[A colleague] simply doesn't have the time to do the publishing part of things. So [their] engagement really has been through conferences" (A1).

Survey and interview methods were both sources of concern to interviewees. In the case of surveys, the correct way to design them created tension; one interviewee was especially concerned because they believed that poorly-designed surveys are a field-wide problem. Several interviewees said that they had discussions with colleagues and mentors about how to balance research questions and rigor in survey design. One described this uncertainty with:

> I think one thing I've learned is how difficult it is to write a good survey. And to get the data that you truly need, you know. And not be too limiting on your

> responses. And not be too vague. And not be leading, and things like that. It's a lot more difficult than you think. (E1).

Interviews created a different problem, since few of the sites had access to an expert qualitative researcher as a mentor. My interviewees collected data, but at each of the three sites where participants mentioned using interview methods there were interviewees who said that they were not sure what was best to do with the data. The result was that several of my participants said they suspected that they could have done better in past published qualitative studies or else mentioned qualitative studies they "lost track of" (C1), meaning that they had never managed to complete an analysis.

Regardless of which uncertainties they faced, interviewees were most interested in publishing a work with some sort of useful conclusions. This pragmatic view of the relationship of practice, research, and publishing appears to reflect a culture of practitioner-research in librarianship. For these participants, rigor throughout the process is a concern, but their ultimate interest is in the publication or presentation. To examine that interest, I asked participants about the process of reaching a target Object of publishable or presentable research.

4.3.2.1 Object - Activity process: The stages of research Activity.

As with any process, there are staged tasks in research. There appear to be similar stages in respondents' research as for other research processes described in the literature. However, some discipline-specific issues arose. A critical finding was that participants' expertise in supporting research does not translate well to their ability to perform research. I was surprised that many of the concepts of information literacy instruction and student research did not translate well into pursuing original research. I had assumed that work the participants did with researchers would come up in their descriptions of deciding on what to research or learning how to do research. But, to my surprise, this was rarely the case.

There is a balance that interviewees described needing to find, between making good progress and avoiding overreaching. Because research stages can be recursive and overlapping, research does not have clean or clear stepwise procedures. One interviewee described a resulting temptation to move too fast:

> I think, as a lot of people probably have, a lot of people jump too far in the process too early. Like writing their survey, or writing their interview guide before they've done too much research into the existing literature. And I've done that. And I know that I need to back up and redo some more literature review. And even on the current project I'm doing, I really need to do more of that now. But it's just exciting to get going and collecting data! And you realize, oh I really should have learned a little bit more about existing literature and where this fits in first. But you learn. (E1)

By contrast, spending too much time dwelling on complete understanding of all of the stages caused participants to lose momentum or to become overwhelmed and confused. One senior peer interviewee gave the advice, "[Don't] think you've got to figure this out before you get started. You know, just, you've got to get in there and write something. It's iterative, and that's okay. And you may totally change what you did, but you've got to put pen to paper" (E5).

Other interviewees also alluded to this balance between needing to observe the stages because they have good reasons to exist, and wanting to move forward. However, the core and senior interviewees do, overall, describe a rough succession of stages that agree between the various ways that participants complete their projects.

4.3.2.1.1 Object – The idea.

Creating and focusing a researchable topic was surprisingly difficult for interviewees. We know from the literature on research (Anastasiadis, Rajan, & Winchester, 2015; Hasson & Yarden, 2012; Sandelowski, 2008), librarianship (Hernon, 2001), and even information literacy (Nutefall & Ryder, 2010) that topic focus is challenging but essential. Participants emphasized the importance of committing to research and working out an idea to start with. As one junior

peer said, “My first year, has been to sort of think about my plan of attack for my research. So I’ve been kind of formulating ideas, thinking about ideas that I’m interested in. And then also narrowing that down to things that I’m interested in but actually want to move forward with to research and write about” (E3).

There are a number of strategies for librarians to get a starting idea. Some that came up in interviews are summarized – with example quotes – in the following list:

- Adapt or expand on ideas heard about at conferences: “There was a really interesting discussion afterwards [after a presentation at ALA], because some other librarians who were history subject specialists got up and said, ‘Well, this is really interesting because it’s very different from what I’m hearing from my faculty’” (B2);
- Apply ideas from the undergraduate or liaison subject discipline to library questions: “One thing is, [for librarians who come] from a history point of view, is that I would suggest looking at the archives materials we have here for research purposes” (D4);
- Brainstorm interests open-endedly with another researcher: “I had a boss who was an idea person. She was a forest kind of view instead of a trees kind of view. And if I would sit down with her and talk about what am I going to do for research we would come up with ten ideas in a 15-minute conversation” (A1);
- Document a new activity at work and compare it to other libraries’ practices and procedures: “So we developed these learning outcomes and then we wondered, ‘Hey like, what are other people doing?’ And it kind of went into this discussion

of how are other people developing these, but also like how are people assessing these" (F1);

- Document an event that surprises you at work and use it to develop a question: "So one of the earliest things I did was just take our reserves and see what there was available as an E-Book. And I was actually kind of shocked at that point to find how relatively little was available" (B1);
- Look at literature about or discuss with colleagues about personal or professional interests: "Their projects are generated from their interests, their experiences" (C2);
- Monitor solicitations for book chapters or special journal issues: "There's a special issue coming out next year that is I think broadly about library collecting. So [our study] is a subcategory that sounded like a nice niche for that" (A1);
- Read appropriate journals for inspirations about the scope of ideas: "My next steps are narrowing down journals, researching those journals to see what has been in there, what it looks like in order to tailor what I'm doing to sort of fit that scope" (E3);
- Read the literature for holes or for identified "next step" suggestions: "So if you just read widely and keep up with what's going on in your field then you'll have an idea of what are the unanswered questions that you might be able to answer" (E1).

Using an existing frustration at work came up at all of the smaller institutions as a way to develop an idea that could both solve a problem and perform research. As one mentor interviewee explained, "Now for people who are, especially people who are intimidated by the

process, I would say look around at what you're doing, find maybe a slightly new spin on it" (F2). Senior interviewees suggested that a simple report could be published in a mid-tier journal, or that a librarian could expand on a local issue with a survey of other libraries or a policy analysis across the profession. The expanding strategy was suggested as a way to scale up to a study that could be published in a higher-tier journal.

After getting an idea, focusing it provides another challenge to these participants. Interviewees said that this was a complicated part, and implied that it affects their choices for the rest of the research process. For example, one interviewee said, "I think the problem we're having is now we've got sort of two or three tangents going on right now. And they probably will interrelate at some point, but we're not clear on, perfectly on, our research questions" (F1). Newer researchers among the participants found this hardest because their process of narrowing to a focused and measurable question interacts with the issue of methodological competence, so they wanted an experienced researcher or a large group to really refine the idea to a specific question of the right scope. As one said, "We can really bounce ideas and that's incredibly helpful. And we just kind of have that type of relationship between all the people who work here … which is just a great environment to have, to have that kind of support and people checking in" (E1). Several interviewees mentioned discussing an idea with colleagues – co-authors, a discussion group, or senior librarians – as a good way to help refine the idea into an actionable question. This helps participants to bring the strengths of colleagues' skills in data, technology, classification, research support, and other specialties into play as well as working by soliciting ideas through more general feedback.

4.3.2.1.2 Object – Literature review.

Interviewees use the literature – reviewing secondary sources related to the research question at hand – in order to contextualize and plan research. Reviewing the literature is an essential part of scholarly writing, according to advice in the literature (e.g. Babbie, 2012; Collins & Cook, 2017; Hernon, 2001). The literature review is explicitly included in the format of most scholarly articles, but participants felt that reading the literature starts before any written review.

I have listed the literature review as a stage between the idea and the design, but for many participants the literature plays a role throughout the process of planning and conducting a study. I had difficulty deciding which place would suit it best, because it came up in so many contexts during interviews. In the end, I decided to place it in its traditional position between idea and design. However, it is worth keeping in mind that consulting the literature may be important at many stages in a research project.

Interviewees mentioned the literature in the context of getting ideas, refining ideas, choosing a design, comparing methods, and writing the final product. Furthermore, in addition to the literature review specifically for a given project, highly productive senior researchers interviewed also maintain broad general familiarity with the literature that aids them throughout and beyond the research Activity. Experienced interviewees emphasized the importance of keeping up with the literature by saying things like, "Of course, you know, [I do] literature reviews and building that literature base. Of course everybody's got to do that" (E5). So, learning to find ideas from the literature, identify potential gaps, and understand the structure of a research article came up as important skills to gain in making a habit of regularly working with the literature.

Reviewing the literature serves several essential roles for participants who are finalizing the idea stage and moving to the design stage. Roles that were mentioned included developing and focusing ideas, identifying publishable gaps, and familiarizing oneself with existing project solutions or research designs. Reading the literature for style and format instead of content was also mentioned as an important way to get a "feel" for how to write an article. As one junior peer described planning for their first manuscript, "I just looked through old issues of [a journal]. And they have one featured article per issue and I just read through them" (F3). The interviewee used that to guide the structure and style of their own first article.

A mentor interviewee described the importance of a good knowledge of the literature as, "[T]he more you read, the more you write, the more you discuss with people, the better your scholarship is going to be. … You've got to read. You can't do this well without being involved in what's going on and without participating in some way with the literature and with what other people are doing" (C1). Several interviewees - especially senior peers - emphasized the importance of keeping up with ideas in the field through the literature. By setting aside time to read the literature despite busy schedules, they appear to develop a better instinct for doing research. Deliberate efforts such as discussion groups and journal clubs were also suggested as a way to help encourage familiarity with the literature.

The written literature review was sometimes described at this stage or sometimes participants waited to write it until they reached the product stage (4.3.2.1.6, below). Participants suggested that after developing the idea was a time to organize and outline the literature, before the research design stage. Some interviewees read without notes, while others used citation management software to formalize their notes and organize their literature review so that writing it later would be easier. Others went ahead and wrote a skeleton of the written review at this

stage, to be finalized with the future manuscript. Those that read the literature at this stage but did not write a review of it until later, said that they usually found that they would re-read later to refresh themselves on the literature they had used. Regardless of the written literature review, participants used reading the literature at this stage to understand the context of the research question in the field, focus the idea into a question, and think about how they might build a design to answer the research question.

4.3.2.1.3 Object – Design.

Design is how interviewees described the thinking stage of creating a strategy to answer a research question by collecting and analyzing data. It is a planning stage, which participants do either in their heads or by writing a protocol outline. Design appears to overlap with most other stages, because participants start thinking about design as early as the initial idea and adjust it throughout collection and analysis based on practical concerns.

Participants believed that librarians do not have strong backgrounds in research design. They said, "Many people have never had research methods classes," (B3), or for Master's programs that did include research design, "Most people were like, 'Let me get this out of the way and never go back to it'" (D3). Coursework in methods and/or statistics were said to help, but not to translate to comfort with the skills that interviewees felt they needed. As one interviewee said, despite having had a statistics course, "I still don't feel like I'm really good at the stats part of quantitative research. I don't understand really what it all means" (E1).

Designing a study was perhaps the most challenging stage of research as reported by interviewees. Designing in a rigorous way and designing in a publishable way are both issues; these two issues overlap but they are not the same. The case study acceptability debate

(discussed in 4.3.2.2 below) is a part of the issue of design. The idea of what is or is not acceptable must have a strong effect on the design stage, as well as affecting other stages.

Overall, participants said that new graduates from library school are not prepared to design research without further experience or training. Taking advantage of tuition reimbursement was a common method that interviewees used to address this. Unfortunately, not all librarians have time or support to take classes, and not all campuses have a course that aligns well with librarians' particular disciplinary interests.

Uncertainties about design lead interviewees to difficulties building a question that matches a method, starting to collect data without being sure whether the data can answer the question, and giving up on rigor to do something more report-oriented instead of inquiry-oriented. Senior interviewees even felt that this was a helpful way to ease intimidated librarians in to research publishing. As one supervisor said:

> What I've found is people if they are intimidated by the process and they feel they have to do research … they're not going to do it, they're just going to be stymied and they're going to, you know, it's going to impede their progress. (F2)

Alternately, a common approach is to do a survey. However, librarians sometimes over-use surveys, as mentioned in the literature review above as well as by a few of the participants. Some participants feared doing poor surveys, and therefore avoided surveys at all. They felt that they had seen people produce surveys quickly but that it didn't answer a meaningful question afterwards. There appeared to be a sharp contrast between advocates of doing what was needed in order to make tenure, and advocates of improving library research rigor.

4.3.2.1.4 Object – Data collection.

Data collection seemed relatively easy to participants. Reaching the stage of data collection, as discussed above, was what they felt was hard. Interviewees must go through the

idea and design process and reach a concept where data can be collected. One main challenge emerged at data collection. Many librarian studies involve patrons or colleagues, and those studies must undergo Institutional Review Board (IRB) review. IRB was a confusing process to most participants. One junior researcher described their uncertainty about IRB as, "[W]e had to do the IRB training thing online, we had to take all that, so that's like all I really know. I don't know a lot about the procedures and all that involved" (F3).

The mechanics of data collection did not bring about particularly intense discussions from interviewees. For those who used existing data such as circulation studies, getting data out in an analyzable fashion presented some challenges. Participants in this situation either had personal expertise or relied on working with a colleague with the expertise to extract that data. No one mentioned wanting such data but being unable to access it; that makes me wonder whether they considered and discarded the idea or simply did not think about existing data without that expertise available.

Resources for collecting data were important to participants. In this study, the interviewees said they valued campus subscriptions to survey tools such as Qualtrics. In the absence of such tools, participants used work-study students to transfer paper surveys to spreadsheets prior to analysis. Surveys were an especially popular approach with interviewees that had access to digital survey tools for creating and distributing surveys. But the biggest challenge about working with data does not appear in the collection stage. The challenge appears in the analysis stage.

4.3.2.1.5 Object – Analysis.

Analyzing data is harder for participants than collecting it, but because of the interconnected nature of the stages the difficulty is significantly affected by the design of the

study. Senior interviewees moved easily through this stage and described good questions and designs as making this stage clear and easy to perform. However, newer interviewees had a more complex experience, wherein earlier ignored uncertainties might lead to a complete barrier at this stage.

Hurried or imprecise navigation through uncertainties earlier in the activity process came to a head for participants when they tried to analyze data. Participants had sometimes collected data in hopes of finding something or figuring it out later, putting off thinking about analysis until the analysis is in process. Putting off thinking about the analysis allowed participants to move through previous steps such as data collection without in-depth planning for how to analyze and draw meaning from the data. Causes of this putting-off described by interviewees mostly focused on lack of confidence in analytical skill. However, several interviewees also mentioned colleagues who they believed had put off thinking about analysis due to time pressure and/or lack of interest in rigor. Interviewees who discussed colleagues' putting-off of analytical planning believed that time pressure was a primary culprit. As one researcher described a colleague's research,

> [s/he] was in a hurry and so places where I might have made a different choice about taking more time to make sure the questions were effective for getting findings with the survey, [s/he] was more interested in pushing it through to get done. (A1).

Putting off analytical design worries until after data is collected therefore appears to have a pragmatic advantage, especially to interviewees' colleagues. At participating sites where rigor is not an evaluative criterion, this putting-off process may actually promote completion of studies. On the other hand, putting off thinking about analysis until after data is collected led some interviewees to problematic, incomplete, or uninformative analyses. Participants indirectly described a cost/benefit trade-off between the benefits of getting a presentation or article

finalized for sharing even if there was relatively little analysis and the benefits of doing rigorous research that has a positive long-term impact even if it delays publishing or presenting some tangible product.

The desire for training was mentioned by several interviewees. The research methods class in library school may either be inadequate or too far removed in time or context to have been a sufficient analytical preparation; one senior interviewee speculated about data analysis, "I'm not sure it's always well explained even for people who might have done a thesis or dissertation" (C3). On the other hand, socializing students in the details of rigorous research might lose the pragmatic advantages mentioned in the previous paragraph, in terms of finishing projects quickly. Momentum (see 4.2.3.3 above) is an important part of participants' mindsets. Resources also might in some way mediate the impact of analytical training.

Resources for analyzing data could either speed or slow interviewees' progress. Interviewees benefit from being able to use familiar, simple tools for data analysis. Successful tactics among the interviewees included using nothing but word processing and focusing on primary source analysis, using pre-made graphs in survey software, and using spreadsheets such as Excel. Using the cameras in mobile phones to collect document data was another valuable tactic, for the few that were performing document analysis. Interviewees who had found their first studies to be going or to have gone well used familiar software and tools for analysis, unless there was an experienced co-author to take on the burden of less familiar software. Lucky participants worked with co-authors in a way that they could balance different campus strengths when each has access to a software the other does not:

> So essentially we broke the analysis into two parts. Because I had a Qualtrics license I did all the quantitative kind of analysis of the explicit categories, and then for the qualitative answers [my co-author] took on all of that stuff… I have had some training in

> qualitative analysis but it's been a really long time ago, so I was kind of grateful not to have to deal with that piece of it. (A1)

When there is no expert for a certain tool, the librarian can lose the study thread entirely. Discussions of failed studies included loading data into software suites and then not being sure what to do with it. This was most likely to happen when both the tool and the method were sources of uncertainty. For example:

> I just didn't know what to do with the data. I would import my transcripts into NVivo, like I said. I was just thinking, 'Okay, go in and code,' but I didn't know what codes to use, I didn't know how do you make links between one transcript to another, it just felt so disconnected to one another and not really any themes and so I just thought I'll just set it aside for now. (E1)

As this quote shows, unfamiliar tools presented a few interviewees with serious barriers to developing through their uncertainties about analysis. These tool barriers were particularly pronounced then the tool was tied to a new methodological concept, such as coding in the preceding quote. Participants who had been successful with their earliest attempts at research studies had focused on good descriptive and correlational studies that could be done in Excel, or on good primary source analyses that can be done in hard copy combined with word processing. The choice of which approach these early successes had used was also aligned with the interviewee's undergraduate background in either social sciences (for descriptive studies) or humanities (for working with primary source documents).

I conclude that using familiar tools and simple analytical approaches that align with undergraduate epistemologies is a way of making this stage's Zone of Proximal Development smaller the first time, so that it is easier to navigate and supports researcher development. It is less ambitious than a more complex development strategy (with a correspondingly greater uncertainty, envisioned as a larger Zone of Proximal Development). However, balancing

ambition in development versus management of uncertainty appears to have some key impacts in moving through the activity process.

4.3.2.2 Object – Study to product.

As mentioned at the start of 4.3, the targets of completing a study to get findings and completing a tangible scholarly product were often conflated in the interviewees' discussions. In one sense this is reasonable, because a single study is often the study to reach the findings to share in a presentation or article. Thus, although the study process and the dissemination product creation process are separate targets within researching, they typically happen in a specific order.

Research products were discussed by interviewees in two parts: creating the product and getting it through the publication, presentation, or other sharing processes. These two parts are linked tightly, and were not explicitly separated, but challenges and successes that interviewees talked about had commonalities that clustered about creation or about dissemination.

Interviewees showed me posters, presentations, and manuscripts in process for articles, chapters, and books. The process of creating the final product was discussed with extensive reference to where the work would be published or presented. None of my interviewees created a product without knowing where it would be submitted (in the case of journal articles) or without an abstract proposed and accepted already (in the cases of presentations, chapters, and books). This makes sense, since the outlet and audience for publishing/presenting has formal and informal rules that control the creation process. Interviewees' discussions of how the outlet and audience influence the product can be roughly grouped into three areas: (1) what format the product takes, including writing versus presentation as well as finer details such as focus on visuals; (2) the epistemological underpinnings and style of discourse to be taken; and (3) practical issues of how the product is written, designed, or composed.

The first, format, has to do with the output of the analysis. The obvious part of this is definitional: journal articles are written, while posters and concurrent sessions include a verbal and a slide portion. The finer details depend on what the interviewee expects the audience to want, and what they believe will be best expressed in the defined format. An interviewee who walked me through their posters (B2) showed quantitative tables and graphs, and discussed working through the process of choosing good graphics to express the findings to the audience. They did not expect to use the same graphics in a written format, however.

Interviewees also discussed audience influences over the epistemology and discourse of the piece. This was discussed heavily by those working on interdisciplinary projects or in subject disciplines. Interviewees described librarians as wanting practical take-aways and many other disciplinary audiences preferring a product with more implications for ways of thinking instead of ways of doing. As one said of working in the humanities,

> [Y]ou sort of have to figure out which audience you're talking to and knowing, 'Okay I'm approaching this as a librarian,' because often they don't want an academic at a library conference or they don't want a librarian at an academic conference. (D3)

Lastly, the outlet controls many practical matters of creating the product. When I, myself, look at journals I see that author/presenter guidelines control matters of length, style manual, color versus greyscale graphics, in-line versus separate graphics, and a host of other minutiae about the creation of a research product. Senior mentoring interviewees mentioned that one of their pieces of advice is to read author guidelines before starting to create the product. One interviewee explicitly said they had needed to learn simply, "how to structure an academic article" (B1).

Once the product is completed, if the product is responding to an accepted proposal, then interviewees did not describe further steps. If the product is a journal manuscript, however, some interviewees discussed challenges and uncertainties with the submission and peer review process. Responding to reviewers was an especially common concern to interviewees, typified by one who said, "That response doesn't really make sense to me. So I don't know. We're trying to figure out how to respond to that" (A1). But sometimes the trouble in understanding is the authoring interviewee's trouble, not the reviewers' vagueness. As another interviewee recalled, "This first article that I had written when I was here, it was ultimately rejected by the journal. And it was rejected for good reason," (B1) although at the time that interviewee did not understand the reason and had trouble accepting it.

Several interviewees mentioned that a role for mentors was assuring them about what was normal in the submission process. Revision, rewriting, and resubmitting brought up issues of momentum, with a few librarians having slowed because of the time gap from review. Persisting through the cycle of submission, review, revision, and resubmission helped interviewees to develop, as the example of the interviewee who had only understood in retrospect that their first rejection was for good reason.

4.3.3 Object - Understanding and uncertainty about research Objects.

The preceding subsections on the Object of research activities have shown how complex research can be. Across the breadth of these interviews, interviewees indicated that navigating these uncertainties changes the Subject's understanding of the Object. Interviewees' most successful strategies also drew on the Community to better understand the Object. So navigating the process of research appears, for these interviewees, to connect closely to influences and help from their peers, supervisors, mentors, and colleagues about how research and

publication/presentation are done. One interviewee described their sense of uncertainty in the absence of guidance as "When it's not guided it's like, oh my gosh I'm doomed" (C3). Another interviewee explained the value of working with a range of colleagues for help during a point of confusion or uncertainty:

> You know, you're running through a whole list of things because your mind is really just kind of spinning at that point because it was just so much information. So I think that's where I get help from [a senior colleague], somebody who has done more research than I have, somebody who I feel is very helpful in developing an idea again and deciding how big or how small to go with it, whether it's one project or multiple projects ... Also I can go to really any of our reference librarians and say this is what I found and this is what I'm looking for and just trying to make sure I've covered all the bases …[So] sometimes I'll pick their brains too, tell me if you'd search, these are the search strands that I've been using, tell me if you have another suggestion of something you think I should try, or if you think I've really kind of covered this in as much as there's out there to see. So that's another way that you can work with your colleagues too. Then I think the other thing that helps me refine things or think of next steps or other conclusions is to share your research with everybody. … I'll say this is what I'm working on and this was my question. I think if you share that with your staff and your colleagues and everyone you get some good feedback, and some feedback that you're not necessarily expecting. (C1)

At my study sites, ways to deal with uncertainty included reading about research methods, attending trainings locally or at conferences, and discussing with colleagues. The most successful core interviewees had discussed extensively with colleagues for advice and feedback at all stages of research. They touched base with their colleagues not only for the big-picture planning but also for encouragement and answers to small-seeming questions. As the preceding long quote shows, a successful strategy drew from a variety of colleagues with different expertise. Then, a wide network of people with different skills was helpful to interviewees, on top of individual mentors.

In this wide network, different experienced people play different roles. A critical role is supporting a junior researcher who is grappling with foundational concepts. One experienced

researcher described a colleague's mentoring of new researchers with, "[s/he] understands the things that they're dealing with… [and] are trying to struggle with. 'How do I get started with this? How do I even know what anything, what this means?'" (C3). This uncertainty in coping with foundational concepts can undermine any potential for progress, so knowing someone who can work through the basics is valuable. In addition, scoping and focusing onto something appropriate depended on collegial feedback. Sometimes this depended on a community with broader disciplinary engagement, as per one core interviewee who said, "What I'm thinking of is getting feedback about what other people think is interesting. Like there's tons of things that I think are interesting, but which of those seems most sort of salable in terms of what I can get accepted somewhere?" (A1). In other cases it was a matter of giving advice on how to use dissemination approaches most effectively to focus interpreting and sharing results, as one junior peer described,

> I had already started writing it [but then a senior colleague] recommended that I do the poster … Now that I'm moving back to the writing I'm finding it very helpful. Because I had to think about, what were the kind of three main findings? What were the main questions and what were the main findings, you know, what came out of those questions? I was able to answer, 'How do I interpret these results, and how do I really like in five minutes just boil it down and explain it that way?' So I've found that really, really helpful. (B2)

However, core and junior participants' senses of need and uncertainty were particularly high around issues of study design and methodology. As one participant said, "The data piece. That's a little harder… [in a study that] was not so successful, I was working with someone who didn't know as much about data. And I knew very little" (F2). Of another experies, the same interviewee said, "One that I did with someone who knew data and knew how to deal with it, and she knew her limits … so that was very successful" (F2). Design and methods uncertainty can

interrupt progress during initial design, data collection, or analysis. One interviewee explained uncertainty in the analysis process with, “I had all this data I didn’t know what to do and how do I analyze it. How do I get from A to B in making a conclusion?” (E1). Another described the search for mentoring or collegial advice on a survey study in process, “I’ve got this hiccup of, like ugh, I’m not sure where to go next, or I just worry about the [survey instrument] questions… Can we tighten these? And then, can we ask for feedback from people who have done this sort of thing before and see what they think?” (F1).

Uncertainty may also develop over time but remain unvoiced. Because the research process is long and uncertainties can persist for a long time, mentoring interviewees suggested that there needed to be some proactiveness on mentors’ and supervisors’ parts too. As one said, “I do check in with them. I do make sure that I’m paying attention to what they’re working on, what they’re doing. And I’m looking for those opportunities to assist when I can, if needed” (F2). Active intervention by mentors was valued by junior interviewees, who described feeling support from these kinds of “check in” visits (C1, E2, F3). In the end, persistence will build experience and experience is key to coping with uncertainties. This is well summarized by one core interviewee who said, “It’s probably not a challenge that I can’t overcome now, but I felt like I couldn’t overcome it at the time” (E1).

4.3.4 Summary: Object

The Object targeted in researching is particularly difficult to untangle. The word “research” is used as an umbrella term to cover many different concepts, goals, and processes. The research process is stepwise, although the steps are not followed linearly. Participants develop various ways of approaching and navigating uncertainties in each part of the process. In the course of describing the process, the stages often merge or are revisited in multiple places.

Some of the difficulty of doing research may lie in trying to think about and target several different activity aims while believing they are a single aim because they are all called "research." The conflation between research in the sense of findings and research in the sense of dissemination products makes aiming at the target Object confusing. The various distinctions made between outputs add to this confusion.

As a result, clarification of these target Objects is essential. In addition, because an Activity must aim at a target Object, an early researcher-librarian often needs to check their aim regularly to clarify targeting throughout the Activity if they are to reach the target Object they were intending to reach. The uncertainty around research Objects means the whole target of the Activity is a matter of uncertainty.

4.4 Tools

Tools for researching are the instruments – both physical and mental – that the Subject uses to do the Activity. Research requires many tools. Tools play an interesting role in CHAT. They only interrelate directly with the Subject, Object, and Community; this is true even if they are structured around other constructs. Most Tools relate in some way to the Division of Labor and/or Rules around research. Yet these relationships go through other constructs. In other words, the Tools used shape and are shaped by the research process. In research, tools appear to shape and be shaped by librarians' ideas of and practices with their Tools.

In this section I will present themes from participants' comments about their use of tools to successfully complete and share research. As with other sections, I start by presenting the themes and example codes in Table 4.3, and then will discuss them.

Table 4.3: Themes and example codes for the Tools construct

Theme	Exemplar codes
Communication and collaboration tools	• Co-authoring • Editing and peer editors

[interrelates with the "Collaboration and Research Teams" theme in the Community construct]	• Using mailing lists/listservs
Familiar everyday tools	• Using tools you use every day
Time management and organization tools [interrelates with the "Organizing and Managing the Process of Research" and the "Time Management" themes in the Division of Labor construct]	• Organizing activities • Time management • Time pressure
Understanding new tools	• Navigating the IRB • Learning new tools • Using campus opportunities • Using NVivo, Atlas.ti, or similar tools • Using survey software

Throughout the discussion about tools, it is important to keep in mind that tools must be available in order to be useful. The availability – or unavailability – of tools underpins all of these themes. Even using everyday tools requires access to the tools. If campus technology policies block the use of external cloud-based resources on campus, for example, then collaborating through Google Docs becomes a much greater hurdle. Thus, research would be affected by what subscription tools are available and by campus infrastructural support.

4.4.1 Tools - Communication and collaboration tools.

Communication and collaboration were discussed as important parts of interviewees' research development processes. The Community around the developing researcher was described as playing a critical role in their ability to navigate through uncertainties. From the initial impetus for a particular project through the final manuscript or presentation, other colleagues are involved in participants' successful research processes. Because the academic library profession includes widespread networks of colleagues, talking to and working with

colleagues often requires them to communicate over long distances. That leads to a need for tools to mediate communication.

The most common, but almost mentioned absently in passing, tool for communication of research was listservs. Participants use e-mail discussion lists extensively in their professional work, including their discussions of research. One of the common roles of listservs was as a source of calls for papers (CFPs) and other solicitations for articles, chapters, and presenters. At interview sites, senior researchers often forwarded opportunities to new researchers; the new researchers saw that as a tangible as well as useful sign of senior colleagues' support. The forwarded messages provided valuable starting points for participants who were unsure of where they would publish or present. They also often prompted ideas – around chapter, issue, or conference themes – which interviewees said could form the root of a research project when the individual was not certain what they would research otherwise. Even when the listserv discussion was not inherently research-related, interviewees said that reading about daily experiences offered them research ideas from what they read about problems at other libraries.

Use of collaborative tools was also frequently mentioned. Co-authoring (and co-presenting and other team-based scholarly projects) requires some form of coordination. Interviewees mostly discussed collaborations at a distance, using an asynchronous back-and forth process between authors. As one said, "So far I've worked with a little bit of NVivo and a little bit of SPSS on my quantitative project, but for the most part it's Word and Excel and Google Docs so far. And a lot of e-mail" (E1). Another emphasized the advantages of comments in different platforms with, "I know my colleagues really liked using comments in Word, Microsoft Word. But I really like Google Docs. But using multiple versions can be tricky. But taking full advantage of comments to communicate one with another is really good, and Google Docs is

great for that" (E5). This shows the importance of both cloud authoring tools and e-mail to coordinate collaborations.

There are less well-known communication tools as well, such as collaboration options within methodological tools. A few interviewees found these especially useful because they allow all members of a collaborative team to see, manipulate, and analyze data. Being able to collaborate within a secure data environment was one way participants used to improve privacy and human subjects protections. Thus, training or awareness-building for collaborative elements of methodological tools like Qualtrics can help to better support librarians who are doing collaborative research.

Collaboration tools do not need to be fancy or expensive. Savvy participants harnessed collaborative authoring tools to streamline the co-authoring process, such as the cloud-based collaborative authoring and presenting tools that are fairly common on campuses. Google Drive is commonly available on U. S. campuses, and Office 365 is another tool that allows for easy co-creation of research artifacts. Shared cloud storage was another way to facilitate collaboration. As one interviewee said, "We used lots of Dropbox, lots of Dropbox. We used Excel initially to sort of map out our coding scheme, you know, what variables we would look for …but it was Dropbox to share the pdf's, to share the Word docs, to share the Excel files" (E5). So these were valuable tools for interviewees to streamline collaborations, and because of the tools' familiarity they do not add to the burden of learning to conduct research.

4.4.2. Tools - Familiar everyday tools.

The use of familiar tools (what Capra et al., 2010, called "tools-at-hand") emerged as an unexpected but important theme. The most productive participants made effective and creative use of tools that they knew already. They used spreadsheet software instead of SPSS or SAS.

They coded transcripts in hardcopy or with Word. These productive participants also organized their literature review in spreadsheets or using their own filing strategy instead of using citation management software (unless they were already highly conversant with citation management software). They concentrated on learning a new method instead of new tools, to have a comfortable environment that they can manage the way they want to. One interviewee explained this as, "I like the sort of pen and paper or just creating a spreadsheet on my own where I get to organize everything and I feel like if I'm using sort of the preset tools that already exist. It's not I'm not doing the job as well or not doing it sort of the right way because I don't have as much control over it" (D3).

In CHAT, tools for performing an activity and the object of an activity are examined separately and considered to influence each other. In life, people confound the two. It was easy for some participants to believe, for example, that doing quantitative analysis depends on learning a quantitative suite. This creates a double challenge for them: learning the methods and a new tool at the same time. The result is that some interviewees described getting distracted by learning to use a tool, rather than focusing on a new method. Starting with an overambitious toolset can slow progress. Using familiar research tools appears to be more accessible to the developing participants. In the focus group, participants said, "I would say probably one of the most used tools, that probably nobody thinks of the tool, is probably Excel … not just for quantitative either. I previously have used it to do qualitative coding." So using familiar tools reduces the learning burden and gives new researchers a greater sense of control over the research. This also hints that an effective development strategy could be to simplify development to learning just one or two new things with each research project, rather than attempting to start with the most rigorous and complex study.

4.4.3 Tools - Time management and organization tools.

Time management and project organization emerged as essential skills for interviewee researchers. These skills helped participants to reduce project complexity and protect the essential resource of time. However, trying to manage and organize adds its own complexities. Participants described needing an organizational system and tools to manage that system; but they also said that if they did not use tools to organize projects and manage time, then immediately-pressing activities end up taking priority over long-term projects like research and writing. As one interviewee said, "You absolutely should be doing some of that [research project] as part of your work, as part of your job. You shouldn't be doing it as part of your own time. So to me that means putting it on your regular calendar, because if it's not on my calendar, it doesn't get done" (A1).

Tools to organize the Division of Labor and protect time can help manage the tasks and keep research tasks from falling out of the workload. Time and task management tools were described as most useful if they are incorporated across the workload and used systematically. Interviewees used calendaring tools to dedicate time to research projects and break the projects into smaller, more manageable parts. As one interviewee said, "[W]hat I'll do a lot is, I'll put down stuff where I'm supposed to be working on things … during those two [reference desk backup] hours if I'm not being asked questions. So I use my calendar to basically tell myself what to do" (F1). This interviewee also monitored their work balance by color-coding the calendar so that they could look back over their calendar to see what kinds of work obligations had been taking their time.

The descriptions of these practices show that such use of organizational and time management tool links closely to time management practices (see 4.6.4 below), which is an

important theme of the Division of Labor. Therefore, more discussion of organizing and time management principles will be addressed in section 4.6.4. Interviewees' time management practices are implemented using time management tools. That implies that the Subject must apply the Tool in order to effectively manage their time for personal Division of Labor. However, as mentioned in 4.4.1 above, learning these practices and tools could present an added burden of learning. This may be worth considering when thinking about adding new tools for time management.

4.4.4 Tools - Understanding new tools.

Some new tools may be unavoidable based on other aspects of the Activity. Rules or Division of Labor or the flow of tasks may require specific tools; this also means that influence from the Community and relationships of Tools with the Subject and Object would affect that Tool-Rule relationship and implementation (or put another way, the Tool-Rule relationship tugs on and is negotiated within the Subject, Object, and Community).

In the specific case of research, there are research Rules and tasks that can demand specific tools. There are also research tools that are not required, but which the researcher may believe will bring advantages. Librarians might need to consider a trade-off between spending time learning new tools and spending time learning and doing the research itself. Both required tools and optional tools with expected benefits arose in interviews.

Unavoidable tools are those that are essential parts of researching, such as protocol or submission review tools whose use is mandatory. The most frequently-mentioned examples that surfaced in interviews are IRB review systems and manuscript/presentation submission systems. These kinds of automated systems for review make the IRB or publication/presentation review much easier for reviewers. IRB systems (and rules, as will be discussed in 4.5.2) came up

particularly regularly. Although these systems were broadly used by Institutional Review Boards on the site campuses, for interviewees using the tools for the first time they added uncertainty. As an interviewee new to research said, "[T]here's other things involved where you have to have paperwork and people have to sign off on things and I would have no idea how to do that" (F3). These kinds of electronic review tools present a form of digital "paperwork" that new researchers do not find intuitive. Assistance may be available, but as the quote above demonstrates the participant does not always know where to start looking for that assistance.

New methodological tools had a learning curve for participants, but their advantages offset the time learning. Survey software was by far the most popular methods-based software in use. Qualtrics, specifically, was mentioned by interviewees for its valuable combination of secure survey collection and data analysis. As one interviewee said, "There was a little bit of a learning curve there, but once I got the hang of it, I really like it, and you can very easily make graphs, like all of these charts and graphs came from within Qualtrics itself" (B2).

Qualitative data analysis (QDA) software was also mentioned as a type of tool, but the views on it were much more mixed. Interviewees that were comfortable with QDA software were enthusiastic about the advantages that it brings; but other interviewees mentioned loading transcripts and then being overwhelmed with uncertainty about how to proceed with the analysis and feeling more confused by the software. Other participants preferred to do qualitative analysis without dedicated QDA tools: "I just munged it in Excel … I'm not going to be using NVivo anytime soon for the qualitative stuff" (A1). The most important takeaway appears to be that learning to use the software is less important than the methods for these participants. Understanding the rules of the methodological process that underlies a research tool can make learning the tool itself far more meaningful. For tools like Qualtrics that are very tightly linked to

the method, learning the tool and method together seems easier. But for QDA software – which is typically designed to accommodate a wide range of data and analytical approaches – the tool appears to be less inherently beneficial until the method is well-understood.

4.4.5 Summary: Tools

Among new researcher-librarians, Tools play a role in impeding or succeeding in research. Some of that role is the predictable role of having access too, support for, and training in research-specific tools such as survey and analytical software. But a great deal of the role of Tools is in the researcher's ability to apply tools to issues beyond the methodological: communication with coauthors and the support community; the organization of tasks and the management of time; the authoring and editing process; and so on.

Furthermore, it is not only the absence of tools or tool knowledge that can be a barrier. The researcher must manage what tools they use, and avoid getting distracted by the temptation to spend time mastering or applying unnecessary tools. Therefore, tools and contextual support for tools encompasses not only support for new tools, but also support from the contextual environment on how to apply known tools to tasks in researching activities.

4.5 Rules

In CHAT, Rules are the guiding principles of an Activity. The rules of research tell us how to go about procedures and processes in research activities. They may be explicit rules, or they may be unspoken rules that new researchers would need to learn along the way. Rules are also not always consistent at all rule-giving levels, so the rules that a librarian learns from their professional socialization may not apply to a specific library or library department.

Table 4.4 lists themes that arose in discussing the rules of doing original research. Rules related to various components of the process, from design through dissemination. Some of these

rules are absolute, while others are mutable guidelines that the librarian may negotiate or evade based on circumstances.

Table 4.4: Themes and example codes for the Rules construct

Theme	Exemplar Codes
Employment rules: Continuing contracts, tenure, promotion, and faculty status [interrelates with the "Motivation – Extrinsic" theme in Subject; the "Administration's Expectations" theme in Community; and the "Research Required for Employment" theme in Outcome]	• Changing P&T policies • Promotion and ranks • Tenure
IRB and compliance rules	• Answering IRB's questions • Getting help navigating the protocol process
Learning the rules of the study process and the dissemination process [interrelates with the "The Research Itself" theme in the Object construct]	• Feeling a bit behind [in learning rigorous methods] • Learning the realistic process

Resource and support procedures	• Having funding or needing funding
	  o Conference travel funds
	  o Research funding
	• Time-related rules
	  o Applying for a sabbatical
	  o Having release time
	• Using a work-study student to help with data

4.5.1 Rules - Employment rules: Continuing contracts, tenure, promotion, faculty status.

Librarians at the interview sites have many different statuses on their campuses. Some of those statuses include expectations of scholarly productivity and professional engagement; others included encouragement but not expectation to conduct research. Because these employment rules affected how participants learned to think about research, these types of employment guidelines fall under this construct.

The rules and guidelines of rank and contract varied widely. Each of the six sites visited had different contract guidelines; several interviewees described rules at other institutions with yet different guidelines. The lack of standardization in contractual guidelines could be a source of confusion in the profession.

Contractual requirements for research showed a mix of clear rules, vague rules, and unstated rules. Some sites included strict rules, which were clear and explicit. These clear rules are very specific guidelines that must be met in order to continue employment past whatever deadlines are described by the contractual rules. For example, one interviewee said, "[F]or the tenure review you have to be able to have two articles, that's in the document, there's no gray area about that" (F2). But not all sites had clear rules, and even those that did varied in the details. Some worked on a point system where some products (like presentations or exhibits) count less than others (like journal articles or books). Others had vaguer expectations such as "evidence of scholarship" with nonrestrictive examples of possible forms of scholarship. The rules may not be explicit, even if there is a guidance document. One interviewee suggested learning about them as soon as possible after being hired at a library with, "Figure out what does research leave look like, and what are the real expectations in terms of deliverables. … Because in a few of the environments I've been in, it's sort of, they're not being clear about how the organization does or doesn't emphasize that" (A2). Differences or vagueness in employment requirements – including tacit rules from the history of the library – can also pose a challenge for new and newly-arrived librarians trying to incorporate their experience or advice from outside peers. As one interviewee said of trying to explain this to a new librarian,

> Part of what the mentoring process program is supposed to do is help people understand the promotion and ranking process. Because that could be pretty much an adjustment, depending on where people came from previously. And if people are used to tenure, ours is not tenure. So there's

> an adjustment with that kind of thing. And then, just understanding some of the history and politics that has come before is part of what I have helped my mentee with. (A1)

Supervisors at sites agreed on one point: clear, early communication about these rules is essential. Communication of rules, most said, should start before onboarding and throughout the pre-review period (review for tenure or the first major contract renewal). Supervisors tried to continue with regular check-ups and updates throughout the pre-review employment cycle. Those that had required goals felt that discussing progress towards fulfilment of the requirements is critical. This also gives the participants' supervisees the opportunity to ask about their uncertainties regarding vaguer and implicit rules. They also believed that talking about implicit rules helps to ease the supervisee's uncertainty and give them regular chances to check their understanding.

4.5.2 Rules - IRB and compliance rules.

When research rules came up in interviews, most participants discussed the Institutional Review Board (IRB). Much of library research involves human subjects. If the research focuses on patrons' needs or librarians' practices, then those may be considered human subjects and the research falls under IRB rules. When humans are the topic of research in the United States, the IRB is likely to become involved. The IRB is responsible for ensuring the ethical treatment of all human research subjects, and documenting each campus' compliance with good ethical standards. The IRB has rules – based on guidance from the U. S. federal government – that affect any researcher at the college or university that researches human subjects. Even though the Institutional Review Board guidance is based on nationwide regulations, participants at different sites described IRBs with different policies and procedures.

These various IRB rules shape the planning of participants that were doing human-subjects research. As one interviewee said, "[O]f course you have to pass a certain thing, and then you have to continue on with your paperwork for the IRB, and answer the questions, and everything that goes along with that. So that was one thing that got a little more complicated and more detailed from where we started with research projects" (C1).

On the other hand, the IRB or its staff can be a supportive team that offers valuable suggestions for research processes and documents. As one interviewee described, "[O]ur Institutional Review Board has been great helping us sort of navigate that process and they try to be partners in the process, which has been great" (E5). In this case, where the library had built a relationship with the IRB, they became a source of reassurance instead of uncertainty. Having a partnership and leveraging it to reassure new researchers may be a way to support the research planning process.

4.5.3 Rules - Learning the rules of the study process and the dissemination process.

Part of learning to do research is learning to navigate the rules of research (see 4.3.2.1 and subsections for more detailed breakdown of the Activity Process, including some rules that arose in discussing specific stages). Some participants saw the rules of research as including both the methodological rules of data collection and analysis, and the product-focused rules of how to structure an article or presentation to fit the product venue.

The real-world rules and procedures were only partially understood by those interviewees who had taken statistics or research methods classes. They believed that the concepts from methods class (for those interviewees that had one) did not intuitively translate into an actionable understanding of the applied rules of research. Some of this had to do with applying the explicit rules of methodology, but there may also have been some issues of either engagement with real-

world context or understanding how the explicit methodological rules tied in with tacit issues of applying these rules to studies of practice. One interviewee alluded to this challenge of application with, “I think the methodology class at the library school is good enough, is rigorous, it’s just that you have to pay attention a lot” (A1). This difficulty in applying understanding of the rules to the rules in application also extended to the journal process. An experienced researcher advised, “[D]on’t assume you know everything….[the] first article that I had written when I was here … I wrote this article, submitted it, they said basically you know, okay where’s the rest of it, and so do this, this, this, this, and I thought I had done this and really in retrospect hadn’t” (B1). This shows both the learning experience of going through the research process and the interviewee’s view of peer review as making sure they followed the rules. Now that the interviewee was used to the standards and processes of research, the rules had become almost second nature and they spoke of being able to write articles regularly.

4.5.4 Rules - Resource and support procedures.

These participants value their research support. But because resources are limited, they spoke of rules and procedures to allot support and guide what can and cannot be done with it. Four categories of support resources emerged in this study (in rough order of prevalence): (1) travel funds, (2) research time, (3) research funds, and (4) personnel assistance. Each has its own rules on how to use it.

Travel funds were discussed with two procedural formats: preset funding amounts for each librarian, or formula allotment from a pool. Preset funds essentially means that all librarians get a travel budget to spend, possibly the same for all or possibly different by rank (some budgets were highest for junior librarians and others highest for highest ranks). Interviewees at sites with set amounts knew exactly how much they had to spend per year; it was given by several as an

example of how they knew that the library supported their research. Interestingly, similar statements of travel being proof of supportiveness were made at several different dollar amounts. Formula allotment arose as another approach, where a pool is given to the librarians as a whole and they allot the funds from the total pool of available funds based on a formula. An example was given of a library faculty committee with a spreadsheet for formula allotment where, "[T]hey look for if you're tenured or if you're not, or if you're tenure track, is it an invited paper, is it peer reviewed, is it a presentation, is it a single presentation, is it joint, are you doing a panel, if it's a panel, then are you the moderation or presenter, so each one of these is a little factor" (C3). In either case, paperwork to apply for the funds – even if it is only a form to explain the purpose of the travel – is part of the process. Participants therefore need to know what kind of travel is considered appropriate, how much funding is available, and how to request it.

Research time arose in the contexts of both weekly research release time and sabbatical time. Weekly release time was discussed in specific relationship to three campuses' workload formulas about how much of the work time should be dedicated to research. In one site where 20% of their evaluation was based on research and they received 10% release time for doing research, a respondent described the support as generous compared to other libraries they knew of because, "Basically one day out of 10 is a research day if you want" (B1). In return for this time, participants at those sites were required to show evidence of research progress. Evidence included the research products, but sites also had various rules about regular reports on research plans, learning plans to develop research skills and/or progress towards research. The other kind of release time that was mentioned at four sites was eligibility for sabbatical time. Sabbatical time is based on campus sabbatical policies at these sites, all of which included some formal

recognition of librarian faculty status or a parallel status. As a result, these librarians can apply for sabbatical leave under the same rules as other faculty.

Research funding was mentioned at two sites in terms of giving monetary support for small budget amounts. Examples of eligible costs mentioned in documents or interviews were specialty software, participant recruitment incentives, or transcription fees. The funding must be applied for – often at the campus level – according to rules about justification of need. A suspicion mentioned in the focus group was that librarians might not always know these funds are available and they suspected that colleagues were not certain whether librarians are eligible or not.

Student assistance as a form of support was mentioned for small-scale, temporary tasks by several participants. Light, short-term student assistance – for only a few days – appears to be relatively common and is not treated like a formal form of support. Examples included a temporary re-assignment of existing undergraduate student workers to help with tasks related to data collection such as distributing surveys. By contrast, in-depth semester-long student assistance through hiring an undergraduate or graduate student specifically as a research assistant was mentioned at only one site. Interviewees did not discuss a learning process for handling short-term student help, and followed mostly informal in-house communication processes to ask other departments for the loan of their student labor. On the other hand, the one interviewee who had worked with a longer-term student assistant discussed the need to navigate the rules of what students could and could not do within the rules of IRB, as well as needing to think through the research procedures they would use in order to create procedures and policies with which to train the student.

4.5.5 Summary: Rules

There are many rules to academic librarians' research, from many sources. Some of them are rules about researching, such as what is and is not considered legitimate analytically or what is accepted ethically. Many rules also exist in the context surrounding research, brought in as part of the practical matters of labor, psychology, and support that the researcher applies to try to get the research done. As with all rules, there is also a blend of tacit and explicit rules in play. One senior peer interviewee even argued that this is inherent to modern research, saying, "We all know the research that gets completed and gets disseminated doesn't adequately depict the mess, the sheer mess of research. I mean, this comes from the sciences! I will tell you, failed experiments do not get published, and that has crept into every discipline. So I also think that prospective researchers should also know about the inconsistencies" (C3).

Mastering the rules takes time and experience. While failing some rules will stop research activity entirely, failing other rules simply makes research harder or creates a suboptimal research product. This leads to an awkward process of navigating rules, where some rules may appear ignorable or may be totally unknown until a future research attempt. Furthermore, the labor rules in particular have a profound effect on the researcher's view of the nature of research. The shape of research as defined by the rules in play can have an effect on the shape of the entire researching activity.

4.6 Division of Labor

The Division of Labor construct refers to how work is organized and split, both within the Activity and between Activities. From the CHAT theoretical view, divisions of labor can refer to dividing work between people or within a single person's tasks. Furthermore, the Division of Labor is determined both personally and communally. Formal divisions may be

imposed by the organizational structure or administrative decisions. Informally, norms and collegial discussion affect how labor is divided.

All of this is to say that the interviewees described a surprisingly complex Division of Labor. Interviewees' administrators decided some aspects of their across-Activities division of labor, but individual interviewees also chose how to divide their work. Because academic librarians are highly trained professionals working in a knowledge industry, I assume that there is more autonomy in the Division of Labor than in less expert careers. Interviewees alluded to a certain degree of flexibility, especially in complex work depending on professional judgement of the library's context. However, because of the 40-hour work week and wide range of work actions and task deliverables, interviewees believed that they had considerably less autonomy over their Division of Labor than their colleagues among disciplinary faculty. Some participants – particularly senior peers – mentioned work outside of their job hours in order to complete their research expectations.

In this study's discussions of research, labor was discussed as divided both within a research project and around the research. Within a research project, participants divided labor among the tasks that must be done to complete the research. Around the research, participants divided their labor between research time and other librarian tasks (although some strategies allow overlapping labors such as writing during lulls in reference desk traffic as well as some of the intersections mentioned below in 4.6.3). Participants also divided their labor along interpersonal and personal divisions; that is to say that interviewees discussed how colleagues divide work among themselves, but also that participants discussed thinking a lot about how to divide their personal labor among multiple roles and tasks.

As with previous sections, Table 4.5 lists themes that arose in discussing the Division of Labor in academic libraries during the research process. These themes may occur in any of the dimensions listed above: inter- and intra-project as well as inter- and intra-personal.

Table 4.5: Themes and example codes for the Division of Labor construct

Themes	Exemplar codes
Effects of and on the library's division of labor [interacts with the "The Organizational Community and Support" theme in the Community construct]	• Dealing with understaffing • Getting people [hiring librarians] with the right level of motivation • Seeing two camps about research [pro and con, in their library]
Finding ways to create overlap between research and librarianship	• Incorporating research into the job • Relating research and practice • Writing it up and publishing it since I'm working on it anyway • Stuff [research] I would be doing anyway
Time management and organizing tasks [interacts with the "Time management and organization tools" theme in the Tools construct]	• Choosing among activities • Organizing activities • Planning out my steps • Setting deadlines • Time management
Working with co-authors and research teams [interacts with the "Collaboration and Research Teams" theme in the Community construct]	• Co-authoring • Collaborating • Having a sounding board • Peer support • Using complementary skills • Working independently

4.6.1 Division of labor - Effects of and on the library's division of labor.

If research productivity is a requirement, then some supervisors believed that hiring committees should keep research in mind when hiring junior librarians, as was mentioned in 4.2.3.1 above. Hiring a librarian who is not prepared to succeed at known requirements was, to some supervisors, poor workforce planning. However, other structural aspects of the library's workforce interact with research activity as well.

Competing demands for time are a concern for participants, and research activities must be incorporated effectively. As one participant said, “This is part of my job, and this is something that I have to be doing for my job. And so I just make it part of my work” (A1). The need to incorporate the work of research into other tasks was discussed by several interviewees. Some used time management to block off time. Others tried to combine research into their daily practice as much as possible. This latter strategy was described as, “What I’m really interested in researching absolutely has to relate to something I’m working on. Just because I don’t feel like I have the time to necessarily go to something completely different” (C1). Limited staffing – often a result of short staffing in the economic downturn – posed a particular challenge to the division of labor in the library. Taking time for research might shortchange other work because, as that interviewee later said, “There are too many other things going on” (C1). Another discussed the difficulty of planning any major travel for data collection with, “How do I make sure that I’m not going at a time when I need to be taking a class? Or when we have an event that I need to be running?” (D1). So a major concern was how to ensure the daily work of the library continues. During staffing shortages, there is very little spare time in the daily schedule. Librarians and administrators alike must decide whether research and associated activities are a necessity at the cost of completing other work.

There are ways for the library’s workforce to support research. One is through developing an effective community around research support. Section 4.8, Community, will have more discussion on how librarians’ expertise can support researcher colleagues. Another is using research to improve practice or build reputation, both of which are discussed in section 4.8, Outcomes. However, when discussing the Division of Labor, the effects of research time on workload planning were a strong area of concern for interviewees.

4.6.2 Division of labor - Finding ways to create overlap between research and librarianship.

Academic librarians particularly notice the Division of Labor between professional and research work. Some librarians perceive or create an overlap between these labors, other librarians find them to be reinforcing but separate concepts, and some find them to be competing concepts, research detracting from more important professional work. As a senior researcher explained when asked whether research and librarianship were connected, “It certainly is for myself. I don’t think we should impose it on librarians who are good librarians but don’t necessarily want to do the research. They want to do their work. … For those of us who are enthusiastic about each other’s and our own research, yes it has a place, but I really, you know, I’m thinking of a couple of other librarians here and that’s the last thing in the world they want to do. It’s just not in their bones” (C2).

Finding some intersection between the two appears to reduce the sense of irrelevance and burden. Librarians who focus on local projects feel they benefit more from project expansion strategies. One assessment librarian said that they actively encourage this approach: ”[librarian colleagues] consult with me, but it’s usually not anything that they’re necessarily planning to publish or do research on. Sometimes they have that idea but a lot of times not. And so if it’s something, especially if it’s somebody that’s tenure track and they need to publish, I might suggest, since you’re doing this anyway, why don’t you think about publishing it. And do you have a little research plan, and get IRB if you need it. And think about that” (EF).

Librarians in positions facing immediate uncertainties due to change will benefit from a workday-question strategy. One interviewee working in outreach wondered why certain disciplines were not responsive and motivated to work with the library, and so did a general

study of that discipline's faculty motivations and interests (F1). That improved understanding of the question, generally, and also helped to create a more effective strategy for their outreach work, specifically.

Librarians in newer fields of practice will have more expansion-focused options as they try to build a new professional specialty. One interviewee described the example of looking at new professional statements in their specialization and doing document analyses to attempt to find practical ways to implement those professional standards (C1). The findings from that research will also help the library show how they are responding to professional trends and evolving expectations.

These exemplify ways that participants strategize to create an overlap that reduces the intellectual and time-burden that librarians feel research can impose. By actively creating an overlap space where practice expertise makes researching easier, or where researching has a direct impact on daily practice, the librarian re-divides their own labors to make a space for research tasks in their non-research tasks.

4.6.3 Division of labor - Time management and organizing tasks.

In addition to the existing discussion of tools for organizing research and managing time, there is also an issue of the effectiveness or ineffectiveness of strategies to organize research tasks. Dividing researching work by setting goals, making a plan, and defending the time needed to fulfil that plan was important. Participants who approached with a deliberate plan of researching tasks felt that it improved their researching work. As one senior interviewee said, "[Y]ou have to systematize the project, you do have to have some kind of an outline, you do have to have some kind of a timeline, you do have to have a set of steps, sort of a set of

procedures, landmarks, watermarks, whatever you want to set, at the same time understanding that all this is written in pencil and that's why pencils have erasers" (C2).

Time pressures were mentioned by many participants as a problem; managing time was suggested by some as a way to ease time pressures. This was discussed particularly as an issue of partitioning the day's labors between research and practice. As a senior interviewee said, "if you just have a block of time that you can just knock something out then it might actually get done. Otherwise things will get eaten up by the day to day" (A3).

Incorporating research time into the busy workday is hard. Most of the interviewees mentioned this as a huge challenge for them. Without time allotted and protected for working on research, the research gets so broken-up that researchers spend more time attempting to recapture what they were doing than they spend making progress.

> [S]etting aside time, protecting time to kind of work on these projects I've found incredibly challenging. They certainly don't fit within how many hours of week I'm putting in; that's just not something I get to do while I'm doing my other work. And so what happens is, you often have breaks between sort of sessions spent working on a project and that can kind of derail any momentum you have going. (A2)

Even librarians with release time built into their schedule mentioned that arranging their schedule so that they could take that release time was an ongoing issue. In the busiest environments, time management requires a long-term view of the whole academic year. Pre-allotting time during quieter parts of the semester, planning research in a way that avoids deadlines in busier periods, and being aware of one's own work style all help. These issues are very individual to each librarian; systems librarians' busiest times are around breaks, instruction librarians are busiest at the start of each semester, and acquisitions and e-resources librarians' busy times center around the fiscal cycle. Connected to that long-term awareness is personal awareness: the researcher should consider whether mornings or afternoons, in small spurts of

work or long blocks of time, are most effective personally. This is discussed in more detail in section 4.2.3.2, Mindfulness. But as a role of the division of labor, time management is particularly an issue of partitioning off sufficient time for research tasks, and defending that time from the encroachment of practice tasks.

This organization and defense of time affected momentum (consider the psychological issues of momentum and progress in 4.2.3.3). Having a flow of tasks moving towards progress, was a key. The level of organization and overall order and orderliness of tasks was different for each participant. But finding a way to progress through the work without stalling in confusion was key. As one peer respondent summed up, "Just always find something to work on. I think it's important to keep moving." (E5).

4.6.4 Division of labor - Working with co-authors and teams.

When research involves collaboration, the work of research must be divided among collaborators. This is the general way one thinks of the division of labor in organizational studies, although CHAT's hierarchical view of activity also sees importance in individual ways of dividing and thinking of labor between Activity tasks. This draws on elements of Tools for collaboration (see 4.4.1) and the Community of collaborators (see 4.7.2). However, the logic of how to divide the labor itself belongs in the Division of Labor.

Key to effective collaborative divisions of labor is making choices based deliberately rather than haphazardly. Deliberative division of labor was seen to be an advantage. One respondent said they started a successful collaboration by "kind of mapping out: this is the goal, this is the responsibility of each collaborator" (D1). By contrast, a less deliberative strategy can delay completion, as one senior peer describes,

> I'm accommodating, let's all get there together. You bring what you want to the table. My personality is not one to say, 'hey you got to get this done

> by this date or you're off the paper,' kind of thing. So things can take longer. I can drag my feet and other people are dragging theirs. So that's a real challenge, setting and meeting those deadlines. (E4)

As this shows, some sense of deliberate mapping of strengths and accounting for tasks seems necessary. Participants described task divisions throughout the process too; a core interviewee described the work of writing up a project with, "There were parts of that article [my collaborator] worked on versus me working on" (A1). This division of labor was purposefully extended through the revision stage, as follows: "Then we just divided up the [reviewer] comments that way. [They] would handle the comments in [their] areas and I would handle the comments in my areas. And then we'll read through what the other person wrote and tweak it" (A1).

In some libraries, every librarian must publish. As a result, collaborations need to be inclusive yet balance the need to complete tasks. This can mean dividing work more disproportionately, grounding the divisions on collaborators' different strengths. An outside perspective may be best for this, if someone has the knowledge to do it. Effective divisions of labor draw from multiple strengths, whether that planning for strengths comes from within the team or from outside. One supervisor explains,

> I really try to look out for the people who are coming along and who are maybe, especially if they're intimidated at the beginning. It's so much easier to work with someone and who's done it before, and who's gone through the process before. I try to know who to sort of have them work with. … [For another example,] I knew some librarians that they were not great about sticking to deadlines. Or some who had some problems just in terms of keeping a project on track. Pair them up with somebody who can do that, you know? Then the one person can contribute more of the writing, but the other person can keep the project rolling and keep it on track. So you've got to have, you've got to kind of know your people and know who best to pair people up with. And who might bring a different skill set that might benefit the project or that might keep things moving. (F2)

Balancing skills and dividing tasks in a way that takes into account various strengths seems to lead participants to view these collaborations as more successful. It also seems to reduce a sense of delay and frustration. Planning for the division of labor and fitting the tasks where they work best is an aim worth striving for; at the supervisory level there also appears to be a role for guiding this kind of process through matchmaking.

4.6.5 Summary: Division of Labor

Librarians' labor of research has divisions within the researching itself and between the research labor and professional labor. In addition, the Divisions of Labor within the workday and workplace have an effect on the librarians' researching work. At both of these levels, there is an individual level and an interpersonal level. Researching work must be divided by any one person doing the research as well as between people whenever multiple people engage in tasks, whether as formal collaborators or not. Librarians' non-research work is relatively defined and its division may be externally regimented, while the research work structure tends to depend on the researcher's choices in task organization. Thus, there are many ways that Divisions of Labor are made differently at different levels and parts of the system. These differences are more multifaceted than they might seem at first glance, and can present tensions in the system of research and library labor.

More detailed dimensions of the Division of Labor emerged within the participants' discussions of researching. Classically in CHAT, the Division of Labor concentrates foremost on the divisions of the tasks in the Activity taskset between people, and secondarily on divisions of tasks by each individual. In this study, the Division of Labor interacts along two dimensions:

Internal versus external to the project, and personal versus interpersonal work. The personal/interpersonal dimension is normally addressed to at least some extent in CHAT, but the internal/external dimension emerged as important to the participants. These dimensions are illustrated below in Figure 4.2. This is a different view than the emergent themes in Table 4.5, re-expressing some key emergent points in a way that highlights these different dimensions. The pressures of extra-project divisions of labor on the success of researching seems to be particularly important to librarians' sense of struggle to fit research among other scheduled tasks.

Figure 4.2: Dimensions of the Division of Labor of academic librarians' research

	Intra-project (Research)	Extra-project (Research vs. Practice)
Intrapersonal	How a participant organizes the work of the research project (dominant theme: Organizing and managing the process of research)	How a participant fits the research project within their full workload (dominant theme: Time management)
Interpersonal	How participants with co-authors and collaborators divide and organize the work of the research project (dominant theme: Working with co-authors and research teams)	How site workforces organize work teams and work tasks around participants' research work (dominant theme: Effects of and on the library's division of labor)

4.7 Community

In CHAT, community is all of the people who have social and psychological ties to the Subject or Object. It is a very inclusive perspective, grounded in the idea that the social community creates and defines much of the nature of work in the modern world, as well as shaping ideas of success and failure and the value of labor. The Community is therefore the social collective context that shapes the target (Object) and psychological issues (Subject) of an Activity as well as defining the value of the Activity. Community is in the center-bottom of the

2nd generation CHAT model because of the pervasive reach of society and community expectations.

In this study, interviewees described many ways of being influenced, hampered, and supported by their Community. The CHAT construct of Community is connected to all constructs other than Outcome, and the network of interinfluences around Community are particularly visible in this study of the Activity of academic librarian research. We know from the literature that researchers often need to transition into a close relationship with an expert such as their doctoral advisor as part of their development (see 2.3.4 above). Because they have no established single guidance like a doctoral advisor to go to, interviewees form these kinds of guiding relationships from the more nebulous expertise available in their wider community. They greatly value their community in dealing with uncertainty and frustration (see also 4.3.3 above). The participants feel that they have many potential sources of expertise to draw from, but do not always feel they have a clear idea of which sources to go to for what needs.

Table 4.6 lists aspects of social interactions and the Community noted by interviewees. Social influences were pervasive, arising throughout the interviews. These themes were reduced from the exemplar codes, often with aspects of other codes and constructs interweaving with them.

Table 4.6: Themes and example codes for the Community construct

Theme	Exemplar codes
Administration's role [interrelates with the "Employment Rules" theme in the Rules construct]	• Administration looking over my shoulder • Being clear about expectations • Interpreting what research and creative activity might be
Collaboration and research teams [interrelates with the "Communication & Collaboration Tools" theme in Tools and the "Working with co-authors & Teams" theme in Division of Labor]	• Being glad for partners • Co-authoring • Discussing what direction to go in • Generating ideas in discussion groups • Identifying strengths • Looking for partners

	• Refining your thinking • Thinking about whether to contact old partners
Campus colleagues in subject departments	• Partnering with one of my department faculty
Family and friends	• Asking my family for feedback • Editing by friends • Needing to take time off for family
Library school and academic background	• Learning to organize projects in library school • Not focusing during research methods • Remembering undergraduate research
Mentors (formal and informal)	• Describing the expert • Having a mentor • Looking for a mentor
Networks in the profession	• Choosing the right professional community • Networking at conferences
Organizational community and support [interrelates with the "Interactions with the Library's Division of Labor" theme in the Division of [research] Labor construct]	• Encouraging scholarship in the library • Getting support from the organization • Having a sounding board in the department • Helping people connect with each other • Passing me opportunities • Pushing me • Recognizing me and providing moral support

4.7.1 Community - Administration's role

Library administration was presented in both supporting and enforcing roles in the research process. On the one hand, administrators were said to provide assistance and guidance for new researcher-librarians, and help to make connections between researchers. On the other hand, administrators were also said to set goals and remind librarians to follow the rules and requirements around research. The interaction between librarian-researcher and administrator could be encouraging or discouraging – or both – depending on the site, the site's context, and each party's approach to the issue of research.

Supervisor interviewees discussed being uniquely well-positioned to know librarians' strengths and weaknesses (as mentioned in 4.6.5). Supervisors felt that they could use this knowledge to mentor teams and to match needs with supports in order to build good teams for

research projects. As an example, one supervisor talked about a time when someone was approaching tenure and, "I knew that they were not great about sticking to deadlines… so pair them up with somebody who can do that... you've got to kind of know your people and know who best to pair people up with and who might bring a different skill set that might benefit the project or that might keep things moving" (F2). By supporting research projects with effectively-built teams just as they would any other project, this administrator provided support for multiple researchers' success.

One-on-one, things appear to become more complex. Interviewees, both supervisees and supervisors, acknowledged that the supervisor must motivate and support while also setting goals and enforcing requirements. Avoiding a hostile relationship arose as key to motivating and supporting new researchers. One interviewee explained that they enjoyed doing the research but would, "Probably hate it more if there were in some sense a jerk administrator that was looking over my shoulder" (D5).

Supervisor interviewees felt that guidance was best when started early and communicated clearly. Discussing the expectations and allowing the new librarian to ask questions is a key part of this. One supervisor explained planning for this process:

> Well, we have someone who just started and I'll be meeting with [them] and going over the structure and I think that it will be helpful for [them] to see our CV's and see our packets and see what we've done and so [they'll] have some examples of things to follow. And then we'll go, you know, [they're] going to go to some conferences this year and then when [they] come back I'm going to say what did you learn, what did they talk about and could you see yourself presenting there, that kind of thing. Yeah, so examples, making sure [they] know the structure. (A3)

4.7.2 Community - Collaboration and research teams.

The most obvious form of working together is when teams of researchers write or present together. Co-authoring is a strategy that is heavily used in these sites. Having a team formed

around research peer discussion, reviewing, and recognition is a less common but nevertheless effective strategy participants used. Sections 4.4.2 and 4.6.5 have discussed tools and dividing labor in co-authoring already; the following subsections address the communities of potential co-authors and the social contexts of those partnerships.

4.7.2.1 Community – Co-authoring and the library Community.

Co-authoring (or co-presenting) involves direct partnership to complete and publish (or present) the findings. For interviewees, this occurred both between peers of similar experience and also between senior and junior collaborators. Ideally, interviewees felt that the partnership should harness each team member's strengths. The most successful co-authoring experiences, according to interviewees,

> …came pretty naturally, everybody sort of identified what their strengths were, you know. … Then different people brought some other technical skills in terms of whether we did the analyses in Atlas.ti or in NVivo and things like that. So it was quite a, you know, we would meet online and talk about it and divvy pieces up and just keep them, keep the project going. (E5)

As mentioned in 4.6.4 above, it is helpful to divide and assign the work of co-authoring early so that roles are clear. Good communication among the team is key. Good communication must be regular, goal-focused, and clear about roles. "[W]e tend to meet fairly often to discuss the direction that we're going in and … staying on top of things so that my collaboration with [my collaborators] has been incredibly successful" (D1). This kind of teamwork with plenty of discussion makes for more successful and satisfying co-authoring experiences.

It is important, however, to know the Community view of co-authored works. From my experience, in some fields co-authoring is less valuable or is valued as long as authorial position is first. In others, co-authored articles and single-authored ones are seen with equivalent credit regardless of position. Librarianship draws influences from so many different fields that

libraries' standards may be influenced by other fields' priorities. Interviewees believe that their sites tend to view co-authoring as a positive thing, giving each co-author the same credit as if they had written alone. But they also indicated that it was important to ask to be sure, both of the written guidelines and the informal views. Consider this conversation:

> **Nina**: Do you remember anything that people said about the issue of solo versus collaboration internal and collaboration external?
> **Interviewee E3**: Yeah, that was one thing that I asked several people here at our library. Both I was curious, just people's personal feelings, but I was also obviously curious about in terms of going up for tenure. What do you know, do people, maybe it's not on paper, but do people hold one over the other higher or think differently about them? So I was curious about all of those things.
> **Nina**: Right.
> **Interviewee E3**: And what I found was that people mostly said that it doesn't matter. That different people, you know, they couldn't speak for everybody. But they felt like there was value in all of them. So they sort of liked to see kind of everything. So they don't hold it against somebody if they've done all of them or they just do one type. I guess the most negative thing was, if people only worked in collaboration with other people and it was kind of like a lot of people. So several authors on all of your publications, and so maybe there would be a question of, like, how much individual work is this person putting in. But yeah, I was curious. I've got, I was also curious if within your institution versus across institutions, because I think there are advantages to both. I mean it's nice to see, it's nice to work with people in your own institution, maybe across different departments to talk about things. But I think there's also some interesting things to be said especially in [my department] since we're sort of a lone wolf, like, within our library. But we could always team up with [people in the same departmental specialty in libraries at] other similar sized institutions or regional institutions to talk about things. So all of that was to say that most people seemed pretty, you know, it was kind of up in the air. There wasn't one that was better than the others or worse than the others. They felt like they all were valuable and contributed in different ways.

This discussion shows several things. First, the discussion shows that colleagues' views of co-authoring are not always specified in documents, so it is necessary to get a feel for other librarians' views. Second, it shows that even in one library there may be various views. Individual administrators or tenure committee members may edge in different ways on the issue, but general consensus at this site gives credit to any involvement in research. Thirdly, the

discussion alludes to some overly large collaborations where groups create articles with enormous author lists but most of the listed co-authors contributed little or nothing. That kind of arrangement appears to be considered weak at this site. Finally, the discussion shows that small departments without in-library co-authors may need to seek other alternatives through the wider professional community. Co-authoring with colleagues in the field at other institutions, or with campus faculty, might be a rewarding alternative if in-house collaborations do not form.

4.7.2.2 Community – Library peers and other ways in which libraries collaborate around research.

Collaboration can reach beyond co-authoring. Working and talking with colleagues – whether internal or external – is another possible strategy to support information exchange and enrich research. An approach that was mentioned – sometimes as an existing practice and sometimes as a collaboration the interviewee wished would form – is holding regular discussions about research where every researcher-librarian shares their ideas. This can be a way to share the state-of-the-art and expand idea generation across departments; as one interviewee suggested, "That would be another role for a writing group, that if part of what they do is talk about the research that's going on in the libraries, then idea generation would happen" (A1). Additionally, regular discussion groups can be a way to review and develop works-in-progress. As another interviewee said, "I can share in these exchange sessions that we've done. I mean the other thing is, we all have different skills, different talents" (B1). Discussion participation would be a way to give feedback and support to colleagues and contribute to every project's success, without being full co-authors on each project. This kind of culture of research discussion might be difficult to build and appears to take time to fully establish, but when it happens the results support learning about research and productivity in research.

Even without committing to regular research discussion groups, researcher-librarians may benefit from some form of collaborative interchange. Even a person who does not easily seek out collaborative projects or discussion may benefit, as one interviewee commented:

> As much as I dislike, generally, collaboration, I think it's good in that it helps you refine your thinking and more viewpoints almost always result in a better product. So I would tell myself involve more people earlier in the process to review or to help write something or bounce your ideas off them and get their feedback. A lot of times I would just prefer to get it done and be a lone ranger but that's not always good and comes out you don't get as good a product in the end, so involve other people. (E1)

The simple act of talking about research appears to not only enrich research in the library, it also appears to help librarians who do research to shift their identities and think of themselves as full members of the larger research community. "Find somebody to talk to about it. You know, shine the light on it, don't hide your light under a bush" (C2). By talking about research, participants think more about research, about themselves as researchers, and about how to improve their work on research.

A popular community-building activity among interviewees was a research day focused on sharing in-progress research (see also annual forums for completed research in 4.7.7.2 Group support, below). Research-in-progress events allowed participants – especially when they were new librarians – to get input on ideas in a low-pressure environment. A suggested structure used at a few sites was a regular event where librarians came together to share their current ideas and progress on research. Each presenter summarizes their situation and then solicits feedback and input from their peers. All peers are expected to discuss and give feedback. There are many advantages to this structure. One advantage mentioned is that the shared expectation lowers individual pressure because everyone is an equal participant. Another advantage that arose is that it puts multiple ideas into the community, which helps foster more idea generation. A third advantage is that, as peer librarians learn each others' interests, they became better able to find

common interests and make connections between interests. So for participants these types of Research Day events had also been sources of co-authoring opportunities.

4.7.3 Community – Campus colleagues and subject departments.

The larger campus is another important part of the community construct. Although campus administrative concerns are implicit sources of library administrative pressures and priorities (consider 4.2.4.1, 4.5.1, 4.7.1, and 4.8.1.1), faculty colleagues in subject departments can be sources of support. Some interviewees mentioned them as just one of a list of many possible places for discussing research, such as "Talk to someone about it [your research]. It could be anyone. Another librarian, a faculty member, someone retired, someone at a conference, whoever." (C2) Some senior interviews mentioned the possibility of collaborating as part of an interdisciplinary team with subject faculty as well: "A lot of the publications, I would say a vast majority of the publications that I've had since working here have been published with faculty members, where I have done research with their project. So [in my specialty] we're very much like a collaborator with their project so our names are on their publications. We are co-author with them." (A3).

In between being one of many possibilities to talk to and being a full co-author, a moderate but important form of support from disciplinary colleagues is targeted advice. One core interviewee was planning to get feedback from a faculty member they knew from campus committee service, "We've got some survey questions we want to ask. And we're just kind of figuring out, are these on different tangents? My colleague in sociology, he's a good friend of mine. And I told him that. And he was like, 'I'm happy to look at your questions, and give you feedback'" (F1). Others reinforced this idea as a way to address research frustrations. For

example, “Maybe there’s like, a faculty member who can help if you’re stuck. Maybe a subject librarian can, you know, reach out and check with their contacts” (D2).

4.7.4 Community - Family and friends.

Support from librarians’ personal lives was mentioned less frequently than support from the library and campus, but when it arose it was described as an important factor in research success. A family that understands or helps with research can be an important boost. Because they work and socialize in the higher education environment, academic librarians often have friends and family with research experience. These are especially important sources of ideas and assistance in research design. As one interviewee described, “I also had the advantage of, one of the projects was working with my wife… She was at a conference and met a colleague who was interested in the same thing. So that led to, I had these research partners” (E5).

Even participants who do not have researchers among their family and friends found that such people could still be a source of support and assistance. Some mentioned this as basic moral support and encouragement. A few specifically mentioned that asking a spouse or friend to read through manuscripts or listen to presentations could be even more valuable than having a colleague do it. As one interviewee said of their husband, “I get him to go back and read things for me. And you know, ‘Okay, does this make sense? What is it that you think I’m trying to say here?’ I mean let’s see, ‘Did I get that point across?’” (C1). Having that outside perspective appears helpful for communication and clarity, because if the participant can communicate research clearly to a non-librarian then it would be that much easier for professional colleagues to understand.

Of course, family can also be a source of obligations. Balancing family obligations with work is often a challenge. Participants talked about the need to plan research projects and other

professional activities around family obligations. As one said of a colleague, “Over the time her daughter has been growing up, she simply doesn’t have the time to do the publishing part of things” (A1). This comment shows that family obligations can affect what kinds of research will suit a schedule. Taking obligations into account can change the nature and focus of research development. In general, accounting for family both as a source of support and as a source of obligation appears to be important to maintaining a good work-life balance in research and other work.

4.7.5 Community - Library school and academic backgrounds.

Participants often mentioned library school when they were discussing their process of navigating their early attempts to do research. Library school appears to be much on participants’ minds when considering their learning about research. They bring the history of what they learned in school with them into the profession. Whether or not they had a research methods class or research paper/thesis in school, the history and cultural views of research that come from the master’s program experience follow them.

In this study, interviewees felt that their master’s degree had been helpful. However, there were also several who felt that MLS coursework was incomplete as a preparation for doing research. Part of this seems to be due to the different nature of original research; as one interviewee said, “I think it’s very different as you choose your first projects, you know. You get through library school, and up until then I mean you’ve been working on research papers, research projects, things like that. But they’ve all really been designed by your instructor. You’ve really been led along the process” (C1).

Some of the limitations of what was learned in library school is due to library students not understanding what they will do with research or why they should care about it. One

interviewee explained, “I feel like in my graduate school education I didn’t really, I didn’t focus on research because I didn’t, I don’t know, this sounds really naïve but I just didn’t think far enough ahead in my career at the time to think that I would be needing to do research” (E3). This participant’s expectation of not needing research appears to have created a disconnection between research and the rest of the curriculum. For another interviewee, the coursework simply did not integrate into a sense of the whole project: “We just did little pieces about things. We didn’t get taken through a whole research process in that class. It’s like, oh this week we’ll talk about IRB. This week, like, interview someone” (F3). This interviewee came away with a sense of several parts of the research process, but did not feel like they integrated it into a real sense of how to *do* research. Only one interviewee – who had been required to complete a full research paper – believed that they had come out of their master’s experience with a good sense of how to do research. Others mentioned having gained essential skills, but felt that the overall research course experience had been insufficient to make them ready for research.

Undergraduate subject experience in research also affects the master’s and on-the-job research experiences. Librarians’ concepts of research are influenced by their baccalaureate socialization into the humanities, social sciences, technology, or sciences. Interviewees sometimes mentioned how their backgrounds in the humanities steered them towards archival research or left them feeling less comfortable with social sciences research. Other interviewees mentioned colleagues with technology-focused backgrounds, who preferred to do project-based technological innovations rather than writing more traditional research papers. So it appears that some of the undergraduate disciplinary experience may have its own influence on these participants’ views of research. The CHAT perspective holds that a person’s cultural history

influences their development through time; the long-term influence of academic background may be an example of this cultural dimension of development.

4.7.6 Community - Mentors (formal and informal).

Mentoring is another important arrangement that was described in interviews. Interviewees described both formal and informal mentoring arrangements. Formally-assigned mentors are expected to help onboard new librarians and guide them through their employment requirements and the organization's expectations. Other mentors are informal sources of guidance; two sites had a single "go-to" expert that everyone in the library knows as a great source of research advice and ideas, but all of the primary interviewees mentioned the value of having a few experienced researchers to talk to for guidance.

The literature often speaks of mentoring in terms of broad guidance through processes and social norms. But one of the needs for new researchers is specific details instead of broad guidance. The practical details of research are what many librarians missed in research methods class. One interviewee described their manuscript rejection as, "And basically it wasn't that they were bad ideas. It was mostly that I hadn't followed the formula if you were, introduction literature search, you know, methods, findings, standard. I really was blissfully ignorant of that" (B1). Another interviewee described what they would like to hear about from mentors as, "I was looking for more of a tangible, here's some pitfalls you may expect to find when you are engaged in writing, and here are some tips" (C1). In this sense, a mentor is a safe advisor for participants to be sure they can go to and get the advice they need.

Having a mentor gave primary interviewees confidence that the project would be completed correctly. "Correct" finishing of a project varied by interviewee. For some interviewees, the important part is methodological correctness. One voiced concern that they

would need to find a methods expert because their mentor was, "…going to be retiring. So I'm going to have to identify somebody else who really has the research chops, who would be interested in the side of things that I'm really interested in" (A1). For other interviewees, advice on the process and structure of scholarship is more important. Another interviewee explained that their research mentor, "…has just very much mastered the process of writing a scholarly article. Now I came on board, I had done a little bit of writing in the past but not that sort of thing" (B1). Talking to an expert for a research goal gives these interviewees both advice and confidence. Both of those examples represent working with informal, found mentors.

All of the sites had some form of formal mentoring. If the mentor is a skilled researcher, they may be a big help with research. But that is not guaranteed: no mentor is an expert in everything. One primary interviewee had deliberately chosen a mentor for research skills, but most formal mentors were assigned. Those interviewees who talked about assigned mentors said that their assigned, formal mentor was not skilled at mentoring in research. So interviewees felt a need to find and approach an informal mentor specifically for research. In discussing finding a mentor, a primary interviewee advised, "I think you go to whoever can help you get jumpstarted. You know, if you find yourself stuck, then I think you've got to go to the person who's best able to get you unstuck. And you may have to talk to a couple different folks" (C1).

While many senior-peer interviewees mentioned having been trained by strong research mentors in the past, most also said that they had multiple mentors or sought out research mentors. One senior gave this as the advice they would give to any new librarian facing support challenges:

> I wouldn't be here unless I'd had this whole cadre of people who had been here a lot longer. Who were willing to, at a drop of a hat, talk to me about what I was working on. Who were willing to read papers I had written. I mean, I had all of that. It just wasn't as, I mean I kind of had to go seek it out myself but it was there. So I think for a librarian, I

> guess what I would offer for a librarian who finds him or herself in a situation where you don't have as much maybe departmental support is, 'Go outside your department and seek out those informal mentors. Feel around who's willing to give you advice and help.' Because there are almost always people who are willing to do that. (F2).

4.7.7 Community - Networks in the profession.

Librarianship, from my personal experience, is a very active profession. Participants were very connected to the professional community; they communicated with colleagues from other states and other countries. However, it is worth noting that they were recruited through listserv mailings to the professional community, so this may be an artifact of the recruitment technique unique to this sample. Professional networks are probably more than typically important to the core interviewees, because they were individuals who were listserv readers and willing to engage with this project.

Modes by which interviewees interact with the professional community include listservs (as discussed in 4.4.2), direct emailing of colleagues, print or web-based professional writing, and conferences. Conferences, in particular, were mentioned as places where participants make connections with peers from different contexts and backgrounds. They use these connections to form networks for gathering advice and ideas for professional practice. When they bring research into the discussion, they use these networks to support their research.

One way that participants used professional networking draws from the literature: some participants and most seniors who served as mentors advocated making contact with authors of key studies. This was advocated as a way to meet colleagues, improve research plans, and possibly find co-authors. This can be done via e-mail or through academic social networks. As one primary interviewee explained:

> You know, if you have specific questions or comments about things, I would not hesitate to follow up with the author of an article… If you have questions about something, or if

> there was something you really liked, or you wanted to know a little something more about how this came up in the research. Yeah, you should contact people. Yeah, you should make connections with colleagues. (C1)

When participants spoke of networking, though, they all also mentioned conferences. Conferences appear to be the place where participants expect to go to make new contacts, discuss presentations, and build their pools of professional contacts. One of the more experienced primary interviewees said that the best advice is, "[N]etwork, network, network. It is really important, and be forward. I mean, if you go to a conference, go up and introduce yourself. Talk to people, you know. Make yourself visible and find knowledgeable people who are willing to help you" (B1).

Discussions about participants' forming of professional networks for research intertwined with broader comments about forming professional networks generally. Several said that finding the right community to network appears to take time and work. Finding the right organization is hard, and a key part of the challenge of choosing a professional community was based on what kinds of contacts are there. Participants believed that they should seek an organization where the other members fit well with the participant's own professional interests and collegial needs. One interviewee in a smaller specialty of librarianship explained:

> Because my area is so specialized I do participate in the local organizations … and it's because there are other librarians in the area who care about [my specialty]. I have dropped all of the sort of big library associations, I'm no longer a member of ALA, I'm no longer a member of SLA… ALA has been sort of a desert for me in terms of [my specialty, so] an organization that's really focused on [my specialty] is where I focused my efforts. (A1)

Mentors sometimes helped in finding communities and conferences for networking. One mentoring strategy that arose was for mentors to use their own networking at conferences as a way to make connections for their mentees and colleagues. One fairly obvious strategy was

referring mentees to people that the mentor knew had similar interests. A less obvious way that participants' mentors helped junior librarians was by sharing what they learned at the conference on return. After a conference, some of the sites held a discussion where attendees would share their own presentations, information from other presentations they had seen, names of colleagues that might be interesting to the library, and insights they had gained. These planned post-conference discussions sometimes connected with having a regular research discussion group (as mentioned in 4.7.2.2 above). Making conference attendance part of the larger community-building discussion in the library was a way for all librarians at those sites to get guidance on which conferences are best for which librarians, and how to make conferences more effective for networking.

Finally, conference costs came up in most of the primary and junior peer interviews. Paying for conference travel appears to be a very visible form of support that the library can give. As one participant said, "Not everybody gets to go to the conferences and not everybody has the money to present and you know. We're very fortunate in that [our boss] does put aside money for us to be able to do those types of things" (C1). Another said, "Support from above for pursuing the research and going to conferences and learning more about what's going on in your field is really helpful" (E1). Conferences were talked about as one of the most important sources of ideas for research and outlets for discussing research findings. The participants felt that conference attendance was a critical component of the research process, and support of conference travel was often presented as evidence that the library was supportive of research.

4.7.8 Community - The organizational community and support.

Participant libraries believe that they must allot resources to support research if they want research to succeed. Many of these are concrete resources such as funding and time, as discussed

in part in 4.5.4, above. Others are social resources, some of which have been addressed above in 4.7.1 and 4.7.5, that build a supportive context. Perhaps the most important of all, according to primary and senior peer interviewees, is that employees feel supported. The overall attitude around the issue of research has a large impact. As long as some concrete resources (i.e., at least some money and/or time) were dedicated to research support, the sense of supportiveness at interview sites depended more on perceiving a positive attitude towards research than on the specific dollar/hour amount allotted to research. An attitude of positive and open discussion about research has more overall effect on the "feel" of supportiveness than any specific form or level of intervention.

4.7.8.1 Community – Supervisory encouragement.

Supervisors and administrators are symbols of the institution of the library, and appear, in many ways, to be seen as the internal voice of the library. As such, actions by supervisors can have a disproportionate impact on the feel of the organization. Participants believe that the library is supportive if they have seen and heard supportive behavior from administration.

One particularly visible action mentioned at several sites is fighting for equity in demands versus supports. That is to say that, when demands increase, supervisors can advocate for equally-increased supports; and when supports decrease, then supervisors can argue for decreased demands. This runs counter to do-more-with-less philosophies, depending on supervisors to respond to campus research-demand growth with proportionate external and internal advocacy for research support. Employees perceive issues that administration is working hard on to be the issues that are especially important to the library as a whole. Thus, visibly advocating for equity in changes between research expectation and research support was described by interviewees as evidence of the importance of research. Interviewees expressed the

support side of this as the director "makes sure we get" release time, or the department head "made sure to remind me that I can use" sabbatical or travel. On the expectations side, they expressed it as something similar to "my boss comes by and reminds me to write something, but not in a criticizing way" and similar expressions [the three preceding quotes were not exact quotes; paraphrased from multiple interviewees to ensure anonymity]. Interviewees respond positively to the sense of active support and engagement that are in balance with expectations.

Communication emerged as another important supervisory encouragement, closely related to the idea of active support and engagement. One side of communication about research is to explain requirements and expectations early, accurately, and often (as mentioned in 4.7.1). There are several other topics that interviewee librarians and supervisors mentioned, including: discussing available supports and how to get them; discussing how to effectively use supports to achieve the expected requirements (such as guidance on how to identify good conferences and make effective use of conference time); and talking to new employees about units that provide help (such as writing or data centers) as well as what exactly they could ask for there and making sure they know how to approach the unit. Many interviewees pointed out the importance of knowing and seeking out the available supports in the library and on campus.

In particular, the earliest early career librarians interviewed were still at a stage of not being sure how to use tenure/contract requirements to identify their own needs. Primary interviewees discussed having been uncertain how to explain their needs to potential sources of support. Supervisors discussed the need to find ways to work with librarians to see if they need to discuss their strategy and goals for moving through the research stages. As one said, "We have an annual review process in our library. And one of the things that's in there is, 'What have you done this year to move towards progression in rank?' So that at least once a year you're talking

about it at the very least. And then it also helps you for goal setting" (A2). However, there is a difficult balance there. As one supervisor said, "Do I have a stick, no. Do I have a carrot, no. All I have is pressure, right. … I have one librarian who did just finally say they don't have to do it. And they walk away from their release time [and we] give them something else to do" (B3).

Finally, some supervisor interviewees mentioned the importance of modeling and sharing in research experiences. Being visibly engaged in the research expectation was said to build the sense of community around research by showing that everyone must publish or present. As one supervisor explained, "I sort of feel a bit of an obligation, I don't know if that's the right word, to always set a positive example for the rest of the faculty, you know. If we're expecting the assistants and the associates to be active and engaged, what better way to promote that than to do it yourself" (E5). So keeping some involvement in the publishing experience can help supervisors to provide better leadership and encouragement. However, the supervisor is only one part of the larger group of colleagues in the library that make up a supportive environment. There is also an important role for the wider peer group.

4.7.8.2 Community – Peer support.

When new librarians start in a research-expecting environment, some it can be intimidating. There are advantages, but uncertainty can undermine them. A supportive peer environment makes it easier to see the research as just one part of the larger learning process. It may be one of the more exceptional parts of the process, but support seems to lessen the sense that research is alien to librarianship.

> **Nina**: … you said you wouldn't have chosen a tenure track position?
> **F3**: I'm really glad I'm in one now because just being a tenure track faculty you have so much more that you can do besides when you're staff. But I really didn't want to publish because I had never done it before and I don't know how to write an academic article, or I didn't. I guess I do more now, but that was my thing. I was like, I don't know how to do this and I don't know how to learn how to do this, which is kind of what

> you're writing about. So I was like, how do I even learn. But when I interviewed here, even from then I could tell that people were going to be really supportive. And that's one of the things they said, it's like, 'That's okay, we're here, we'll write with you, we'll support you.'

In this way, research seems to become just one more thing to work on while learning the new job for them. That appears to set an important base for moving on to how the library and fellow librarians can work together to support research success.

A successful supportive organization appears to depend on support from peers. Although one or two experts may provide the expertise for research, a wider sense of group engagement is needed. One way to foster this is through peer discussion. Peer-to-peer discussion has an enormous impact on comfort with research. It helps promote thinking and problem-solving about research. The one study site that had a formal research support group discussed the kinds of things that might come up in such a peer-to-peer group:

> Respondent 1: I think it's a little bit of a community of practice model for this group where it's just kind of get together and talk and see what organically evolves….
> Respondent 2: Well, people talk about their individual projects and then we ask questions of what people have done in the past, sort of best practice questions but also what issues came up with that sort of research and how we might improve a little bit. Yeah.
> Respondent 1: And through that discussion one person may jump in and say, 'You might want to read this article because I think it would be really helpful to your research,' or 'You know, this tool might be really useful for you,' you know, that kind of thing.

The value of having partners or groups for discussion was emphasized by most interviewees. Whether the interviewee was slightly or highly experienced; and, as mentioned in 4.7.2.2, whether they preferred working independently or co-authoring, they still found value in discussing ideas with their peers. Thus, fostering situations where discussion between peers is encouraged is an important and valuable way to create support for research. Lastly, an environment of research discussion encourages librarians by keeping research on their minds.

Keeping research actively on librarians' minds in turn creates a sense of both expectation and possibility. It encourages a pro-research thought process and helps researchers to maintain momentum.

As mentioned in 4.3.1 above, many academic librarians fear research. As a result, they dislike talking or even thinking about research. To help combat this feeling, it is important to identify, recruit, or build individuals who view research in a positive light. From there, it is also important to encourage organization-wide propagation of positivity towards research. Moral support – emotional support to boost morale and provide encouragement – is important for building positive feelings about research. Recognition of research achievements is a key way to build moral support, as described here:

> I think the biggest benefit is just the communal aspect of it. So, obviously the folks you already met with are writing, so they understand, you know, whenever somebody publishes something, you know, there's a bar on campus and we get a pint or something. But in general it's very much lauded; it's brought up at faculty meetings that so and so has published this and we all clap. And so I think, within the library itself, it's more of the biggest support is kind of the moral [support] aspect. The recognition, I guess, is the example. (D4)

Holding a recognition event such as an annual forum can formalize both peer discussions and recognition for moral support. "We'll have occasional sharing sessions where someone will present at a conference and we'll have them do basically a brief version or the entire presentation for the library faculty…. Just so we all know what we're all working on. And that kind of thing is encouraged. I think that's really valuable" (B1). This strategy combines elements of having a research discussion group and having a recognition event.

No single support can ensure research success in the library. A combination of tangible and community-based supports is needed. In addition, librarians must be able to take advantage of available resources and supports. Because of the busy workload, flexibility is also needed.

4.7.8.3 Community – Referrals and the broader community.

Because outreach and support depend on building relationships, librarians engage with a large network of colleagues and develop many contacts. Senior librarians and supervisors can use these contacts to help new researchers to get the support they need. New researchers often lack strong campus and extramural networks; even those that are experienced librarians but novice researchers may have strong networks of contacts around practice but not around research. When librarians are new to the campus, they often do not know the "obvious" sources of assistance from campus units, research cores, and other experts who help the campus community. Referring these new researchers to sources of help is an essential way to broaden the available resources and mentors for successful research. This becomes even more critical if the library lacks in-house research experts.

Essentially this concept combines several other factors of Community that have been discussed throughout 4.7. Collaborators, mentors, and professional networks have been discussed as valuable. But reaching those elements of the community is nontrivial. "I can't find that," one core interviewee said of the search for mentors (C1). Another said, "That's not, you know, the best match for me," (A1) discussing the most available collaborator. In both cases, the interviewees looked to supervisors and senior colleagues as sources of information in their searches. Therefore, I believe that deliberate effort at introductions and referrals to helpful members of the community are a way to allow junior librarians to benefit from those contacts and begin to build their own network of people and helpful units. Referrals can be as simple as forwarding email opportunities, or more elaborate like making introductions on campus or at conferences. Junior interviewees often mentioned those kinds of communications as examples of what made the library feel supportive. Thus, encouraging the propagation of successful

community-building from senior researchers to junior researchers helps close the loop and perpetuate a long-lasting sense of research community.

4.7.9 Summary – Community.

The importance of community to librarians' researching is not surprising. The greatest role of the community is as a source of support that helps the librarian to navigate their uncertainties about research. However, it also provides boundaries on support and can be a source of confusion or anxiety in some cases. The presence of a diversely supportive community is a key factor in success. When that community is not available locally, successful researching librarians call in resources from a wider range such as the campus and profession.

This points to a few key issues for environments where librarians are new to research. Developing a community is an important part of enabling new researcher-librarians to succeed in research. Therefore, if a researcher-librarian community does not exist at a given library then enabling research will mean finding or building some access to an alternative community for support and information.

4.8 Outcomes

Outcomes are the distal results expected from the Activity; production of the Object leads to the Outcome. Participating sites had outcomes of research productivity that mixed the personal, organizational, and professional. The discussion of why participants do research and what they expect at the end is surprisingly complex, due to the intertwined identities of academic librarians. Participants' immediate thinking about outcomes often centers around personal interests such as tenure or contract confirmation. Beyond those immediate motivations participants also shared a complex of ideas about influence, quality, and professionalism.

Table 4.7 presents themes and codes related to the expected "end game" of research. Sometimes these relate closely to participating librarians' or administrators' motivations. Other times they are expressions of the thought process around the question of what comes of participants doing research. The Outcomes are generally the expected, hoped-for, or imagined long-term results of doing research. The Outcomes manifest the thoughts and attitudes around the larger distal role of librarians' research in their personal, organizational, and professional lives.

Table 4.7: Themes and example codes for the Outcomes construct

Theme	Exemplar codes

Reputation building	• Achieving parity with campus faculty
	  o n.b. Refers to the librarians as a group
	• Being more than a transactional job
	  o n.b. Refers to perceptions by faculty and campus administrators of the profession; affects the library organizationally
	• Getting respect from faculty
	  o n.b. Discussed both individually and as an organization
	• Growing in the profession
	  o n.b. Refers to individual relationships with external librarian peers
	• Relating to campus scholars
	  o n.b. Refers to direct relationships between librarians and faculty

Research required for employment [interrelates with the "Employment Rules" theme in the Rules construct]	• Objecting to faculty status • Promotion and [faculty] ranks • Research requirements for promotion • Tenure
Research to produce or use evidence	• Benefiting from creating evidence • Relating research and practice

4.8.1 Outcomes - Reputation building.

Participants – particularly senior participants – believed that one valuable outcome of success in research was building library and personal reputation. Reputation-building includes

outcomes like gaining respect and being valued for contributions. Some participants expressed a concern that the library faced stereotypes about the nature of librarianship. As one interviewee said, "I still have somebody that even though he knew exactly what we did, it was just a common thing for him to say, you know, 'So are all the books in order on the shelf yet?' You know, don't say that; you know better" (C2). Reputation-building was discussed in part as a way to combat these stereotypes.

There are two levels of reputation-building that emerged during interviews: individual and library reputations. The reputation of the library as a whole was mainly the concern of participating supervisors and directors, although they also discussed individual reputations of themselves and their team members. Nonsupervisory interviewees discussed only their own individual reputations with others on campus.

Research, as discussed in these libraries, is typically an individual or small team activity. The recognition that participants believed they received for doing research is similarly individual. But the accumulation of these individual activities is seen to change how the librarians as a group are perceived. As one supervisor said, "It was important for us to both do and understand, and be recognized for being part of the community of scholarship taking place here at the university, and be part of that" (C3). Another echoed this sentiment with, "It's important for us to produce good quality, scholarly material. So, that stops little side jokes at the gatherings. We are a legit faculty and we are intelligent. We do work hard, and we are interested in producing scholarship in some form" (D2). As an undercurrent to this group reputation as "a legit faculty," supervisors discussed the shared legitimacy as having wider effects on the library-campus relationship, rather than simply being a multiplication of individual reputations. So,

while the individual and library levels at these sites are inherently entwined with each other, the perspectives are different.

4.8.1.1 Outcomes – Library reputation.

Library-wide policies to encourage research were discussed mainly in terms of library-wide reputation. My interpretation of this is that, because the library is treated as a unit in campus administrative and policy terms, a library administrator who wishes to build the library's reputation as a unit must create unit-wide policies.

Administrative-level participants said that it was to the library's benefit to build a positive library reputation, in order to improve the library's position in policies and standing with other campus administrators. These administrative participants believed that an organizational driver for faculty status and other research expectations is closely tied to reputation. As one supervisor who had successfully advocated for faculty status explained, "I felt it was important, as I said, for us to be part of the educational process and to be able to make it clear to people how we participate in that, rather than simply do transactions. The transactional aspect of what a librarian does is what a lot of people think, that's all there is to us" (C3). Another supervisor interviewee said something even more specifically geared to research, that "it brings a positive attention to the librarians and it really showcases our ability to do research… And really I think it evidences, too, to the faculty that we do have some library scholars here. We do more than just support your classes, support your research. We actually create our own research, and produce it, and publish it. And so that's something that I encourage" (D2). So the shared experience, the ability to talk about librarians' expertise as peers of other researchers, that has a great positive impact. The value of being knowledgeable academic colleagues is high. It was believed to make it easier to engage with campus committees as faculty members, and gain influence and

connections through administrative activities on campus. Thus, the impact had wider-ranging policy and strategy implications than simply accreting several high-reputation individuals. The benefits of reputation were described as reflecting back on the institution as well. Because of the teaching-research-service structure of higher education, participants felt that increasing research productivity in the university supported the whole university mission. The result is that more research in these libraries was also described as boosting the scholarly reputation of the library, and potentially the campus. As one supervisor described, "I've said to several [unpublished librarians], to have your name in a journal or any type of library related publication. It just kind of brings not only attention to your work but to us as a library" (D2). This visibility could even affect the whole institution's reputation, according to supervisory interviews, particularly when the librarians' research aligns with their library and institutional character. An administrator explained, "[Sharing research] also is an opportunity to really ask about what are the strengths that we have as an institution and, in terms of research, what are the things that we are known for or that we want to be known for" (E2).

An interesting point is that these institutional benefits were well-discussed by supervisors but never by core interviewees or junior peers, and only once by a senior peer. Supervisory interviewees discussed this second layer of organizational reputation in addition to the individual (and accumulation of multiple librarians' individual) reputations. My personal sense it that this is one source of the tension that develops in the interaction between the organizational Community and the individual Subject. I came to suspect, over the course of the interviews and my analysis, that libraries and administrators benefit doubly: both from having an accumulation of high-reputation individuals and, from a more positive library reputation. However, I also suspect that this second level of library reputation does not have a direct impact that is visible to many

individual librarians. Thus, the greatest benefits come at an administrative level, while the work of research and therefore the greatest time costs come at the individual level. That is not to say, however, that individual librarians do not have reputational outcomes from research. Librarians do benefit from reputation due to research. However, librarians' individual benefits fall in a separate subtheme of personal reputation.

4.8.1.2 Outcomes – Personal reputation.

The Outcome of personal reputation was discussed in ways that tie strongly to the individual librarian and follow that interviewee to their environment (even to a new job) and in their individual interactions. Discussions showed personal reputation as affecting them in two distinct types of situations: with on-campus colleagues and with off-campus professional colleagues. This outcome impacts the participant's interpersonal interactions rather than the organization's interaction with administrators and other organizational representatives. Therefore, it has different long-term concerns and motives, without the library reputation motives of policy influence. Reputational contexts on-campus versus off-campus were discussed with different interpersonal implications and different internal calculi of importance from each other, making them distinct subthemes.

4.8.1.2.1 Outcomes – Personal reputation on campus.

Personal reputation on campus affects participants in their interactions with non-library campus researchers. Affected interactions can involve liaison work or campus committee service. Liaison work, in particular, was discussed as an important focus of personal reputation. As one senior interviewee expressed, "[Disciplinary faculty] don't know what it is we do either and are sometimes puzzled by their interaction with the librarians. … Sometimes they're really grateful and discover that we often have similar interests to them. 'Oh wow really, you do this

too?' 'Yep we do, and let me tell you what mine is all about. And you tell me about yours.' And we'll share concerns" (C3). Having equal entrée into faculty life made building connections and performing outreach easier for this interviewee.

Whether on committees or as a liaison, librarians feel treated more as peers when they do research. One senior researcher described this as, "[W]hen I hear other librarians say they feel kind of disregarded by the faculty, I don't feel that at all. And I know that part of the reason for that is the people I work with, the faculty members I work with, are aware of the pretty strong scholarly publication. Sometimes they say it, but it's mainly just understood" (D5). There is a change to the tenor of the conversation for these participants because they believe they are treated like peers. They believe that it improves communication and working relationships. They believe that being able to show that they relate to the full research experience translates into confidence from the faculty in their ability to teach and support research. So the campus reputation gives participants a tangible payback in relationship-building and colleague respect.

4.8.1.2.2 Outcomes – Personal reputation in the profession.

Personal reputation in the profession has fewer day-to-day effects than campus reputation, but it supports the participant at a larger scale. Participants believed that this off-campus professional reputation opens opportunities that might otherwise be unavailable. These opportunities are mainly of interest to participants who want to be engaged professionwide, and for those participants, research is described as an enormous advantage. As one highly engaged senior librarian explained:

> I think producing scholarship, at least I know in my sort of little niche because I produce scholarship, it has then allowed me to be on certain committees at the national/international level that I would not necessarily have been on. So for example, I was asked to be on a scholarly communications task force through [a professional organization] which then took me to Chicago last month. I am also on a search committee; we're interviewing a series of applicants for our sort of

> flagship journal … It has opened doors for me that I don't think would have otherwise. (D2)

Even sending dossiers out for external review has its advantages. As mentioned earlier, librarians like to prove their value and hear how they can improve it. The peer review process and the external review process can serve this purpose for librarians' scholarship. As one senior researcher said, "It allows me, then, the opportunity to showcase what I've done for my peers, and that's fulfilling" (D2). There are relatively few opportunities for a librarian to check their own achievements in the broader professional context, and so by allowing the librarian to see that they are read and accepted in the larger context, successful scholarship is very affirming.

Realistically, the drive for professional reputation and the drive for research productivity are probably linked. So librarians who are driven to serve the profession may tend to also be those who are driven to research. If so, that link is mainly through reputation and influence on the field. Other than the outcomes of reputation, research productivity and professional activity do not harness innately similar mentalities. On the other hand, they are both important in the academy. There may be something about the spirit of academe that particularly drives some academic librarians to engage professionally through research and networking alike.

The final benefit to professional reputation is in career mobility. Some libraries simply will not hire above the entry level without some evidence of scholarly ability, so doing research and building a reputation as a researcher raises competitiveness on the job market. As one interviewee said, "I'd like to think that my publications -- at this point, I think I've got like four -- will help me and all my service will help me if I do change jobs ever at any point, just like thinking down the road" (F1). A robust research reputation may make the difference between otherwise equal candidates, and at faculty status libraries it may be an absolute requirement for certain levels of jobs.

4.8.2 Outcomes - Research required for employment.

As long as the academy is structured around the three pillars of teaching, research, and service, research seems likely to be a part of working in higher education. Several participating sites framed research requirements in terms of research support, discussing the role of collections and public service in the larger research environment of the college or university. But at each of the sites, there was explicit encouragement for research performance in addition to research support. This encouragement might be improved annual reviews, or opportunities for promotion.

However, at some sites research was an absolute requirement, analogous to or the same as tenure requirements to produce research. These sites had a term of review, by the end of which the participant had to have produced research that met a required standard of productivity or lose their job. However, the exact structures and levels of requirements varied between sites. The stricture of encouragement or requirement was reflected in how dominantly the participant described the drive towards the employment outcome. Requirements of research for promotion but not ongoing employment, for example, were reflected in a mix of concern for meeting employment requirements with other outcomes like reputation and betterment of the profession. The more that research was required at the library, the more the role of tenure or contract dominated the interview.

Among the six sites I visited, each of the six evaluative structures for research performance was different. Some participants are officially faculty members, whereas others have faculty status without rank or tenure, parallel rank and status, continuing contracts or career contracts, and even non-status positions that include a faculty-review-like structure in the annual review. Regardless of restrictiveness, faculty performance standards appeared to create research performance pressure via the librarians' employment standards. If the campus sets a standard

such as *faculty are expected to document consistent research excellence* versus *faculty are expected to show evidence of engagement in scholarship in support of teaching excellence*,[1] then library documents will show similar evaluative criteria such as *documented excellent research productivity* versus *evidence of scholarship in support of professional excellence*. This parallelism has an effect on what sites, and therefore participants, see both as the product and the post-production outcome that drive research activities. As one interviewee said, "We have the same three criteria that every other faculty has … because we were trying to make ourselves as equivalent as we could to the rest of the teaching faculty" (F2). A supervisor interviewee explained this explicitly as, "anything you do to make yourself more visibly different from them [the disciplinary faculty] will bite you in the ass" (C2).

Each site had some guidelines or departmental standards, but these standards were not uniform in structure or content beyond certain general statements such as the ACRL-AAUP joint statement. This variability was already discussed in terms of the rules of acceptability (see 4.5.1), but it also means that participants had different views of what long-term outcomes of their research might be. In particular, the balance between threat of job loss or opportunity for advancement tied in to the emotional context around research. As one interviewee, in a setting where there were incentives rather than threats connected to research, said, "I suspect how troubling it is depends on your situation. How much pressure is there for you to really get something done within a certain timeframe? We don't have that here from the outside. So it's mainly internal, and that is from within. That's a lot different" (D5).

For some librarians, an intrinsic love of research (see 4.3.2.2 above) is outcome enough. The satisfaction of having done the research and shared it with others is the outcome, and it is

[1] Paraphrases were combined from multiple documents, to create clearer comparison between the two examples.

sufficient. For others there is a positive feeling towards status based on a blend of practicality and standing. "[Y]ou have a lot more freedom in your work, like I can decide on what projects I want to do. It's not like I'm being told my daily tasks, having someone look over my shoulder, because I have a lot of autonomy as a faculty member which is really nice … I feel so lucky, you know. So yeah, I wouldn't trade it for the world" (F3).

Successful researchers have no personal reason to dislike contracts based on research, since they are not facing dismissal due to research. But that does not stop them from being concerned about contractual mandates. Researchers see the worry and fear of research around them, and are sympathetic with their non-researcher colleagues. As one senior mentor explained:

> [Research] does have a place but I really don't like the idea of it being imposed. I also think that we should accommodate the tiered approach, and by that I don't mean hierarchy, I just mean different kinds of appointment… There should be no difference in contracts other than the statement that one is faculty and one is whatever else, maybe they would be faculty, I don't know. But I think we should, I really do think we should accommodate people who don't want to go down the same track that you and I have taken. (C2)

One interviewee described a situation where a library had the chance to give all librarians the choice between tenure and non-tenure positions, and they all chose tenure. However, the interviewee explained, "I think everybody felt pressure to do so. I chose it because I wanted to, but I know in a couple cases there were people who were not in love with that idea but felt like that was the right thing to do" (F2). Supervisors, even those who advocated for faculty or equivalent status, felt likewise concerned. They reported that, although they appreciated the positive organizational impact of research and status, they wished there was some way to provide alternatives or reduce pressure on librarians afraid of research.

As this shows, there can be ambivalence towards the idea of contractually-required research. The benefits of faculty status are appreciated, but some librarians are so uncomfortable

with conducting research that they would rather leave than face a research mandate. One junior peer even said, “I felt really competent except for publishing. So definitely this was the part that intimidated me. And I told them that when I was interviewing, this was the part of the job that scared me” (F3). This participant stated that they had seriously considered not applying or rejecting the job offer due to the research mandate.

Research as a requirement for employment was the most common Outcome being aimed for with the Activity of research, as well as the most powerfully-motivating one. There is good reason to think that the number of researcher-librarians would drop enormously without these mandates. However, the potential for research fear to have a negative effect on librarians in these contracts could affect the organization. Libraries must be prepared to acknowledge this fear as a real part of the faculty or similar research mandate.

4.8.3 Outcomes - Research to produce or use evidence.

Research and the Evidence-Based Librarianship and Information Practice movement were also tied together by participants. Evidence-based librarianship is an important trend in the field (Eldridge 2012; 2013; 2014, and as discussed in in the literature review above), and participants discussed research as a way to improve library practice by collecting and comparing data. Participants discussed this trend both in library-specific terms and in terms of a broader professional ethic.

Several participants voiced a desire to benefit from creating evidence, in order to improve their library’s success. One described what grew into a large project as starting this way, “When I first started working on that research it was about sort of evaluating the library… And then saying, ‘Okay, where do we have deficiencies and how can we address those?’” (C1). Participants discussed the importance of using research and evidence to better understand their

daily practice. Another said, “I’m supportive of the idea of research as a way of developing expertise and understanding of a process” (C3). In this way, researching and documenting practices are seen as ways to inform and improve practices in the specific library.

An element of professionalism and the improvement of the profession was another outcome of interest to interviewees. The outcome of strengthening professional pride held some motivating value for local practice, but also tied in with the larger context of librarian identity. One interviewee moved between library and professional culture by starting a discussion of why they admired their library’s research culture, which had “that kind of willingness to look at sort of evidence. Rather than what a leader may or may not just feel is the best thing to do” (B2). The same interviewee continued with, “Of course, there always should be a balance. We need leaders and we need people who are sort of able to identify trends and move in new directions and willing to change. We need all of that. But we also need evidence. It’s a profession, and by definition a profession should be a kind of collective endeavor, I think” (B2). This comment shows the interconnectedness of their thought processes about librarianship as a whole and the library in particular.

Thus, some participants appear to believe that research ties in with the betterment and quality of the profession. This appears to be an issue of professional pride and the elevation of our overall ideals of practice. As one core interviewee said:

> [I]n terms of the gatekeeping of the profession it seems to me that we could do much easier requirements for continuing education if more people had higher expectations involving something along the lines of presenting and professional engagement, even if it weren’t publishing, even if it weren’t research, but that that would be a move in the right direction. (A1)

Participants evidently feel that there is a larger professional principle served by sharing findings and the results of their efforts. This quote also alludes to a difference between local

evidence and more generalizable research. It appears that this participant believes that even when ideals of rigor are not met, increasing the sharing of outcomes evidence and engagement with the profession would still contribute to the outcome of elevating the profession.

4.8.4 Summary: Outcomes

So the distal outcomes of researching among librarians appear to be both practical and idealistic. Practical concerns of promotion and contract are important, and come up frequently. These kinds of employment concerns can eclipse less fundamental outcomes of research productivity. The more conceptual outcomes of producing or using evidence are also valued by librarians, in ways that are easily entangled with ideas of assessment and user-responsive practice. Both of these topics are touched on in the literature discussed in Chapter 2 as well.

An outcome that is far less explicit in the literature is the issue of reputation. In particular, there are reputational benefits that accrue to librarians in their interactions with faculty and that accrue to the library as a whole through the perceptions of librarians as scholars and faculty librarians. These outcomes seem like the kinds of benefits that underlie policy statements and profession-wide advocacy for faculty status among librarians. Libraries and the profession might benefit from making this reputational outcome more explicit so that the reasoning behind research expectations can be discussed openly.

4.9 Chapter summary

Research in academic libraries has many facets. From the procedural to the theoretical, from the tangible to the psychological, the activity of librarian research is complicated. It is no wonder that there are so many contradictions in policy and literature around research.

Psychologically, there seems to be an important difference between how to do research and how to navigate becoming able to do research. Studying about research in school did not

appear to suffice for participants to feel that they had learned to do research. Doing research seems to be essential to learning to fully apply research techniques and principles. However, attempting to do research did not lead participants fully to an understanding of research either. Many of the participants showed that the active doing of research was necessary but not sufficient to understanding research. I would conclude that across these sites research is hard for researcher-librarians to explain and that, even having succeeded in research once does not lead the researcher-librarian to believe that they have learned to do research.

As a result, the conclusions and practical implications of this study will concentrate on what to do with the many ideas which came from the interviews and analysis. Although there were many thought-provoking issues that arose, not all of them address the practical issue of learning to research. The next stage is to bring together some conclusions about what challenges academic librarians may face in developing researcher competencies, and what supports may be effective in supporting these librarians in developing the competency to perform research.

CHAPTER 5: CONCLUSIONS

In this concluding chapter, I present two kinds of conclusions. First, I discuss various theoretical implications and present the Activity constructs expressed in the early researching efforts of academic librarians. The model is preliminary in nature, and aims to inform future research in the field. Next, I provide practical conclusions for librarians and libraries and discuss best practices suggested by the findings from my research study. These best practices should give useful applied advice for libraries and librarians to plan research. The chapter concludes with a discussion of the limitations of this study and suggestions for future research.

5.1 Theoretical Representation of the Activity of Academic Librarians' Researching

Initially this study was motivated by a desire to understand how academic librarians developed their early skills and competencies in researching. However, the discussions inevitably centered around the Activity of Researching. Even questions about essential skills the interviewees learned or advice to new librarians trying to do research drew from applied learning rather than supplementary coursework. In CHAT, it is normal to develop by doing, which seemed to suit development of researching competencies. But this study did not effectively build a focus on development distinct from doing. Some possible reasons for this are: it may be that asking about activities before learning steered the interviews towards the Activity instead of development; it may be an inevitable theoretical effect in using the CHAT construct model instead of focusing on other aspects of CHAT; or it may be that researching and development of researching competencies are nearly inextricable in the experiences of these librarians. So, my modeling focuses on the Activity of early researching activities and experiences of academic

librarians. Therefore, I present a discussion of CHAT analyses and a CHAT Activity model of researching in academic librarians' early research projects.

5.1.1 Cultural-Historical Activity Theory (CHAT) and Academic Librarian Researching Activities

Before considering a preliminary model of researcher competencies development among academic librarians, it is valuable to go back and re-examine the implications of the findings of this study on CHAT analytical interests. Some of the findings interact meaningfully with the concerns and implications of CHAT as a view on researcher competency development. Looking at these theoretical implications and attempting to align them into a full view of learning should give some cohesion to the preliminary model.

This re-examination of the researching Activity highlights how researching looks in the CHAT framework, because I believe that this view provides some insight into CHAT and its application. However, it should be noted that this view, though theoretical, is derived only from the current study of researching among librarians. Even so, these ideas may be conceptually relevant to the development of similar complex suites of competencies, of the sort that one usually develops through long hands-on applied learning experiences. With that caveat, I present some potential modifications of CHAT for the situation of librarian research competencies development, and for the concept of research competencies development as viewed from a CHAT perspective.

5.1.1.1 Contradictions and tensions in the nature of the Object of researching.

One of the analytical concerns of CHAT is the concept of contradictions that point out the presence of tensions. A major contradiction that arose in this analysis was conflation of the aims of researching. This conflation was between researching with an aim at discovering

findings and researching with an aim at producing artifacts. Talking about "research" with interviewees sometimes led to discussion of artifact production and sometimes to the discovery of findings. Sometimes both findings and products were discussed together, treating the report of the findings and the discovery of the findings as one conceptual Object.

CHAT suggests that contradictions often stem from tensions in the system. A common tension in CHAT (which is based in the Vygotskian school which, in turn. has many Marxist influences) is value tension. As mentioned in 2.4.3 above, many systems are seen to have tension caused by use-value of activities in tension against an exchange-value of the activities. In the case of research competencies, the conflation of the research finding with the research artifact is likely due to this very kind of value tension. There is an exchange-value placed on the production of articles and presentations, while the use-value lies in the usefulness of the findings themselves. By putting a price on productivity, the academy creates a problematic contradiction. This emphasis on exchange confuses the issue of why we do research; it encourages a belief in the academy that researching a lot is more important than researching well. This is particularly visible in environments where productivity is mandated. On the one hand, the exchange-value of research helps to ensure that research happens. On the other, it means that the product is valued in and of itself for its ability to be exchanged for continuing employment, rather than being judged on the usefulness of the findings.

Although this view does not require any adjustment in the CHAT view of Activity, it highlights some specific points such as tight coupling of researching Objects and Outcomes, as well as a conceptual bifurcation of what is meant when librarians talk about research. These points of coupling and bifurcation may need to be emphasized in training and discussions about

research among academic librarians. These points may also have further implications about CHAT in knowledge work and professional work.

5.1.1.2 Fractional navigation of the Zone of Proximal Development.

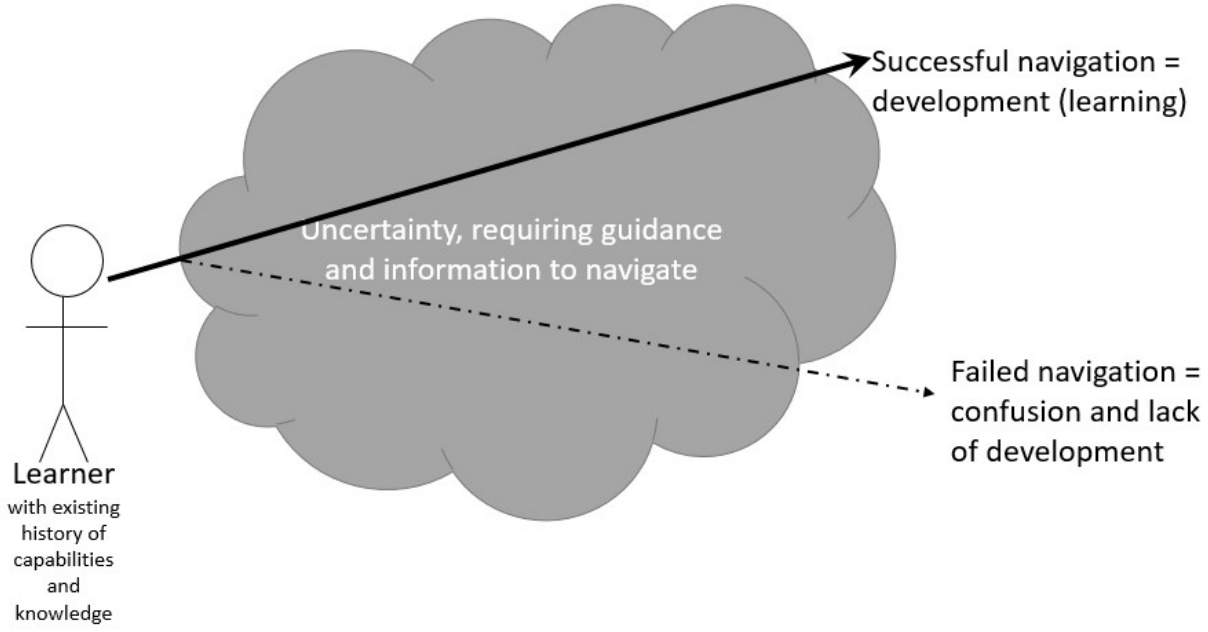
A particular feature of librarians' development of researcher competencies appears to be that there is not a single area of uncertainty. Instead, there are multiple interlocking uncertainties that they face in developing research competencies. Some of these are sequential sets of competencies such as understanding human ethics generally and then understanding campus IRB rules specifically. However, many of them are not so tightly linked, such as understanding the traditional format of a journal articles and understanding the submission process for journal articles. Because it is possible to submit an article without following the traditional format – although the review process will then present problems – these loosely linked competencies are difficult to navigate. They can occur sequentially but they do not necessarily have logical linkages in procedure. Moreover, there are a large number of competencies involved in a successful research process, as we saw in Chapter 4. Trying to work through them all for an ideal learning experience was not feasible for these learners. Instead, some learned just enough of the process to make it successfully through a research project (or they did not make it through, and were faced with confusion). Instead of facing the whole of their uncertainties around research, they faced as many as were necessary for one project, then learned or planned to learn more in a second project.

My thinking on this is that the uncertainties are too numerous and complex for the whole cloud of uncertainty around research to be navigated at once. There is not even a clear beginner's stage for reducing the cloud in a systematic stepwise fashion. Instead, I believe that each researcher takes – with whatever guidance they can access – various segments of the cloud of

uncertainty and learns through those. They then piece those together as best they can. These pieces are fragments of the learner's uncertainty, and so I am calling this *fractional navigation* of the Zone of Proximal Development.

Traditionally, development through the Zone of Proximal Development (in both the Vygotskian school overall and in early versions of CHAT) is considered to look something like the process shown in Figure 5.1.

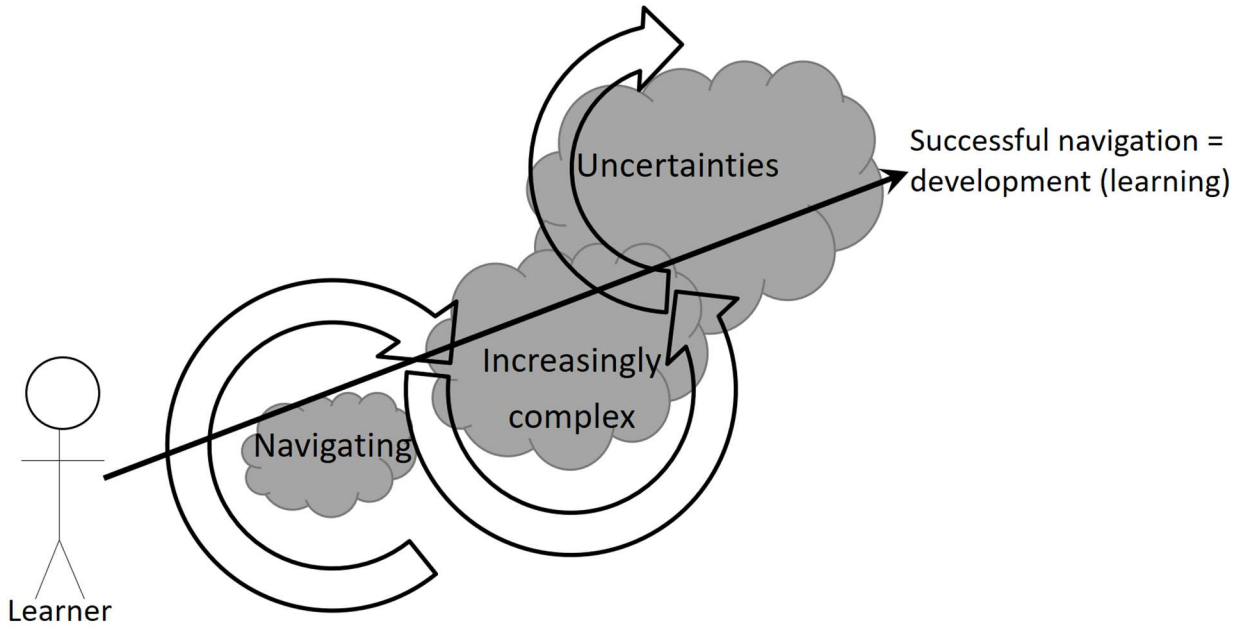
Figure 5.1: The Zone of Proximal Development --- Development by navigating uncertainties



Engeström's work, in the second and third generations of CHAT and beyond, has included the concept of expansive development, wherein increasing difficulties are navigated by learners and teams of learners. Engeström concentrates on organizational development and knowledge work in his concept of expansive development, seeing organizational learning through facing small and then larger uncertainties as an upward spiral of growth. Other Vygostkian-school work on youth learning has concentrated on a parallel train of theory, focused

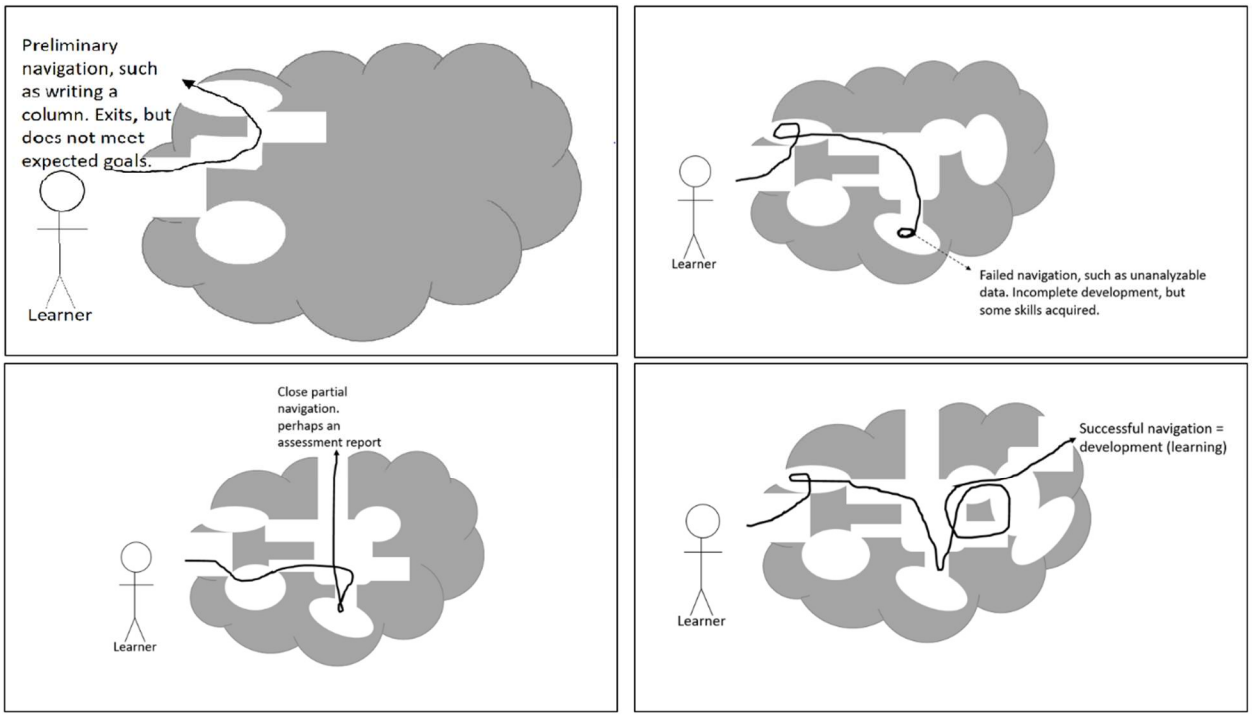
on individual learning in an expanding upward view from simple to complex concepts via scaffolded learning. A simplified view of expansive learning or scaffolded learning can be visualized as in Figure 5.2.

Figure 5.2: Breaking up the Zone of Proximal Development into smaller uncertainties for navigability



However, no scaffold exists for many of the academic librarians who are attempting to develop their research competencies. If there is such a scaffold, participants did not find it accessible or perhaps did not find it to be applicable to their situation. Instead, they faced a large cloud of uncertainty, so much so that even the right way to approach it was itself uncertain. They therefore took multiple attempts, approaching pieces of a route and experiencing different elements of the research experience each time they tried. This experience can be visualized as shown in Figure 5.3.

Figure 5.3: Fractionally navigating the ZPD with partial development in each attempt



The sketchy paths and irregular shapes are reflective of what I believe to be the uncertain feeling of the fractional navigation experience. This fractional navigation is similar to the metaphoric blind men feeling out the nature of an elephant. The librarian is attempting to feel out research by parts, and do identify what it might look like. Different views of the meaning of research and the Activity of researching get formed and shared. Unlike the elephant metaphor, oftentimes the librarian has a sense that there is something beyond what they can identify. Thus they may try again and make another attempt at the metaphoric elephant and get another image. Repeating these efforts may create a complete picture of the elephant, or it may not. Perhaps this fractional navigation reflects the underlying nature of research. But as interviewees expressed a particular sense of blindness about either the nature of research or the way to move forward in

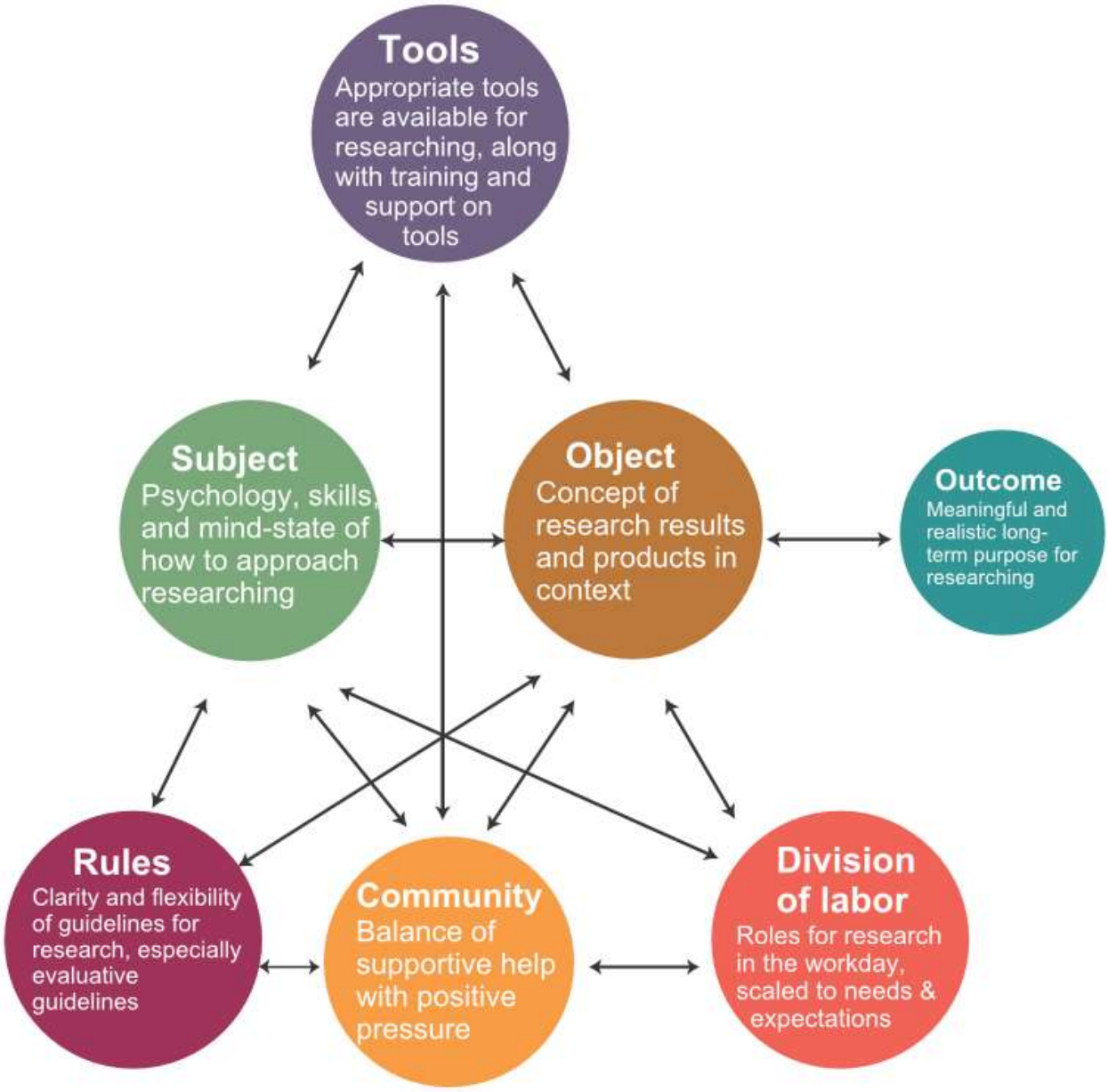
feeling out larger parts of it, there seems to be a sense of particular blindness (to extend the metaphor) that is being experienced.

If true, this idea of fractional navigation may relate to issues of mastery and self-efficacy, as well as the liminal state of passing through the research "threshold." Traditionally, mastery experiences are key to building self-efficacy and thereby increasing self-regulation and confidence that affects task success (Bandura, Freeman, & Lightsey, 1999). However, this contrasts somewhat with the complex uncertainties of threshold concept theory. Navigating threshold concepts presents a more complex experience of learning and growth interspersed with blockages in progress and understanding (Kiley, 2015; Meyer & Land 2003, 2005). This idea of fractional navigation of uncertainty may be an alternative way of considering the liminal state experienced in the midst of complex uncertainties. This may relate to why librarians regularly report less than "very confident" or "very high" in both research confidence and research self-efficacy even if they have had some early mastery experiences, as well as why there is no significant relationship between perceptions of research training adequacy in school and subsequent research productivity (Brancolini & Kennedy, 2017; Kennedy & Brancolini, 2019; Powell, Baker, & Mika 2002). It bears further investigation as a possible lens on learning in research specifically, and possibly on other forms of learning and development through complex uncertainties.

5.1.2 Constructs in librarian researching

With these modifications about some of CHAT's analytical concerns in mind, I present in Figure 5.4 a summary model of how the Activity of librarian researching is expressed in the core CHAT constructs. Each of these constructs will be discussed in turn.

Figure 5.4: Model of academic librarians' Researching Activity



5.1.2.1 Subject.

The academic librarian as the Subject in researching includes the librarian's psychology, skills and mind-state to approach researching. The psychological and intellectual approach to research can have an important but sometimes subtle influence on researching. Subject attributes

are mental backgrounds and approaches to researching, which are mainly internal aspects that are brought with the Subject to their efforts at researching. They may include the Subject's background with research, uncertainty and comfort with uncertainty, comfort with writing and/or presenting, expectations, feelings, metacognition, intrinsic motivation, research-related identity, and strategic thinking. So these attributes include existing experience with research, which is already known to make a difference in research confidence (Kennedy & Brancolini, 2018). The academic librarian as Subject also incorporates elements of motivation that are known to be critical to research productivity among librarians (Fennewald, 2007; Hoffman, Berg, & Koufogiannakis, 2017). However, the academic librarian as researching's Subject includes other aspects of the librarian's thoughts and feelings in approaching research. Metacognition and strategic thinking stand out, particularly, as concepts that emerged among these participants but have not previously been addressed in the literature on librarians' research.

In CHAT, recall that the historical-cultural context of the Subject comes with them through the flow of time from their history. Therefore, many of these Subject attributes are background qualities, such as that librarians who are comfortable with research will probably do better at researching. However, these Subject attributes do not have to be a passive condition the librarian brings to their research. They also reflect the deliberativeness with which a librarian handles (or does not handle) their own psychology, learning, and mental model of the research process. Deliberately thinking about one's own feelings, thoughts, and general mental approach to researching can affect librarians' researching. Deliberate stress management or reflective practice embedded into the researching process are examples of this deliberativeness.

Thus, the psychological construct of the researcher-librarian as Subject includes passive background factors that the librarian brings to their researching, but librarians can also choose a

deliberate approach to considering and harnessing or controlling these attributes. Therefore, the Subject construct in librarian research is a blend of historical psychological factors brought to the research experience and optionally active modifying of attributes which can be deliberately learned and practiced in the course of researching.

5.1.2.2 Object and Outcome.

It is useful to consider the constructs of Object and Outcome together in the Activity of researching. These constructs are the Object of research, the anticipated Outcome of the researching Activity, and their interrelationship. The Object of academic librarian researching is the librarian's concept of targeted research results and products in the librarian's context, and the Outcome is the librarian's meaningful and (in successful researching) realistic long-term purpose for researching. In other words, the Object of this researching Activity is the conceptualized and successfully performed target of researching, both the intangible findings discovered through researching and the physical or digital form created to manifest and communicate those findings. The intangible target of reaching findings has professional practice characteristics, and echoes characteristics found in Boyer's (1990) scholarship of teaching and learning and scholarship of application. The tangible target of the physical form tends towards peer reviewed journal articles, but other forms are possible based on guidance from the librarian's context. These two parallel targets together form the Object of researching. The Outcome is the anticipated long-term results that the targeted Object should move the librarian towards. Outcomes vary and can be specific, like success in promotion, or less specific, like building reputation or benefiting the profession.

The Object and Outcome are unusually tightly coupled in librarian researching. The interrelationship here is so strong that most factors and traits describing the Object and/or Outcome either spill over from one to the other or exist as traits of the Object-Outcome

interrelationship. When we recall that the Object is the target and the Outcome is the distal result of reaching the target, this points to a confounding of Activity targets with distal purposes. This confounding of targets and purposes points to a deep entanglement of researching Objects of findings with Objects of products and entanglement of both with the contextual Outcomes of prestige, rank/status, and organizational pressures.

The librarian's researching Object-Outcome traits can include the alignment of the research concept with planned product; the alignment of the research concept with available venues for sharing it; the alignment of research goals with available supports; the librarian's extrinsic motivation, the breadth of range of acceptable product formats; and the breadth of range of acceptable topics and disciplines. They generally describe the relationships between conceptual or process targets of researching's Object, or between targets of researching and acceptance from the context of the long-term purpose in researching's Outcome, or between the long-term purpose in researching's Outcome and the concept and product targeted in the Object. Consider, for example, the discussions of external motivation (see 4.2.4.1 above), and its intersection with the theme of the library and institutional attitudes towards different study types and products (see 4.3.1.2.1 above). These kinds of forces on the librarian affect the librarian's concept of the goal and the purposes for targeting that Object. Whether tenure/contract renewal or reputation is the extrinsic motivator, it will need to shape the researcher-librarian's targeted product if the librarian is to attain their desired Outcome. But the researcher-librarian's conceptualization of research findings and products are also going to shape what findings and products they target and how they approach that targeted Object. If the Subject-driven concept of target and the Outcomes-driven nature of the target do not align, then the researching will face challenges or else the Object will not lead to the desired Outcome. This alignment of target (with

all of the contextual forces from the other constructs of the Activity) and long-term purpose for researching is an important part of perceived success as well as the tangible completion of researching.

5.1.2.3 Tools.

The Tools construct in academic librarians' researching manifests in the immediate Tools to be applied to researching tasks, as well as the necessary training and resources to support the successful use of those Tools in researching. These Tools range widely and include both technological Tools, like research collaboration or data collection Tools, and also intellectual Tools, such as knowledge of research design. In any case, the tool construct's description must include traits about the adoption and usability context as well as the Tools themselves, and therefore includes the availability of Tools for use in research, as well as librarians' access to learning and the availability of support resources about the available Tools.

Researching's Tools appear to be most interesting in their interrelationships with other constructs. For example, the librarian-as-subject and their psychological approach to depending on exotic Tools versus finding ways to use simple Tools is one such interrelationship (see 4.4.2 above). This reflects similar ideas as Capra et al.'s (2010) idea that searchers use the tools-at-hand in creative ways to process and work with information effectively. The use of Tools for dividing Labor is another example (see sections 4.4.1 and 4.4.3 above). The influence of Tools for researching on other aspects of researching success is worth considering. A particular area that I have not noticed in the literature is how a support community and training resources for communication and collaboration tools (as opposed to the more predictable data collection and analysis tools) might affect researching. It would be interesting to consider how one might

improve research through training and support for the use of Tools in solving issues of Rules, Division of Labor, and Community aspects of researching.

5.1.2.4 Rules.

Rules in researching are the guidelines for research, especially the evaluative guidelines directly affecting the librarian. The clarity and flexibility of these Rules has an enormous impact on researching success. There are many Rules to researching, which are created by the library, campus, and profession. They can include campus contractual policies on researchers outside of traditional faculty, compliance requirements, librarians' contractual status, librarians' employment requirements, and guidelines for publishing and presenting academic librarian research. The alignment of these guidelines with progress and momentum is an important factor in how they affect researching success.

Evaluative guidelines in particular were spoken of as key to maintaining forward progress in researching and understanding what kinds of research products the researching process should be targeting. Because these Rules vary so much from library to library, they should be easier to understand or tailor to local needs. Yet, the core interviewees and junior peers often faced challenges in understanding their Rules and how to appropriately judge a target object for researching. Rules exerted a strong influence on other constructs for these participants, and therefore their alignments or misalignments can create ease or difficulty in the researching Activity overall.

The existence of these Rules was not, on its own, the defining characteristic of these Rules for this study's participants. Rather, it was traits of these Rules, such as how clear the Rules are that can enable or block easy navigation of the Rules. Another trait of the Rules was how flexible the Rules are, to enable or impede evaluation to align with the interdisciplinary

nature of library and information professionals' work. Both clarity and flexibility can affect forward progress through the Rules of researching to succeed in the process of researching.

5.1.2.5 Division of Labor.

The Division of Labor in researching refers to the various roles in researching and for research in the workday. The degree to which these roles are scaled appropriately affects researching success; this degree of scaling refers to how these roles are scoped and divided to meet the many needs and expectations of researching and of the librarian's workday. Researching's Division of Labor in academic libraries depends on the workplace context and on the planning approach for the researcher librarian. Multiple researchers working on a team bring their multiple Divisions of Labor, both in their multiple approaches to planning and in their multiple Labor roles within the library context. The needs and expectations of the researcher-librarian(s) as well as the needs and expectations of the organization all create various roles for research and ways of dividing Labor within and around researching.

These roles for research in the workday context can be examined in three levels relative to the Activity of academic librarians' researching: (1) intra-researching level within researching; (2) inter-Activity level between researching and non-research librarian work activities; and (3) extra-researching level outside of researching about Labor in non-research librarian work tasks in the context. While purely extra-researching work tasks do not impact the researching directly, they affect the librarian's time, energy, and psychological readiness to act as the Subject of researching. Intra-researching level Divisions of Labor include: Organization, researching team collaboration, and time management; these are about how the work is divided within researching tasks (whether for one or many researcher-librarians). Inter-Activity level Divisions of Labor are about work-research connectedness; in other words, how and to what extent researching tasks tie

to the researcher-librarian(s)' non-research work tasks. Extra-researching level divisions refer to workload distributions in the library; these are Divisions of Labor in other work activities and roles that affect the librarian's availability of Labor for researching.

Thinking about the three dimensions or levels at which Divisions of Labor interact with researching may help to unpack one of the particular differences between the researcher-librarian and more traditional faculty researchers. In particular, the inter-Activity and extra-researching levels relate to day-to-day work tasks in the 12-month and (ostensibly) 40-hour work week schedule of academic librarians. Because of the set nature of these tasks and the comparatively inflexible work schedule, the Divisions of Labor of the workaday context of Labor creates a different feel for the researcher-librarian than more traditional faculty researchers. These pressing tasks are felt to take priority over research and to make it difficult to allot Labor to researching.

5.1.2.6 Community.

Academic librarians' researching Community includes the sources of support and assistance, sources of guidance, and sources of pressures to continue researching activities and the balance across them. The Community comes from direct collaborators, information provided by peers in the library as well as librarian and faculty colleagues outside the library. Supervisors and mentors may provide both advice and positive pressure to keep moving forward, which affect the library's social environment for momentum. The library's reputation for research affects the availability of external librarian and faculty support and a wider social environment for momentum from the campus.

More distally there are also the less specific bodies of professional colleagues – not those who directly interact with the researching but the larger body of campus decision makers, library

publication editors and conference organizers, and even the overall Community of academic librarians that shape the perspectives and standards of the profession as a whole.

In successful researching, there needs to be both supportive help for the researcher-librarian and forward pressure on the Activity. This aligns well with what we already know about the importance of a supportive environment generally and of the value of a community of colleagues specifically (Hoffman, Berg, & Koufogiannakis, 2017; Kennedy & Brancolini, 2012; Kennedy & Brancolini, 2018). Among my participants, support and pressure appeared to need some balance with each other, so that the help is balanced by motivation to make progress, and the need for progress is balanced by support and assistance. Direct appeals to the Community around researching appear to be the most actively sought-out and relied-on part of the researching context by the researcher-librarian. At the same time, frustrations at the difficulty in finding needed supports from the Community are also issues. The Community appears to be the most variable feature of researching contexts across libraries, but also the one that most researcher-librarians turn to first.

5.1.3 Theoretical Summary and Implications.

The view developed here has theoretical implications for CHAT in broader applications. Four areas of potential broader theoretical implications stood out in the current analysis: (1) the multiple levels of Division of Labor in this study, which seems relevant to researching by other "40 hour, 12 month" workers who are doing research secondarily to another job; (2) close coupling of the Object and Outcome in researching, which might have significance for many types of professional-level work; (3) dualism between targeting findings versus publications as the Object of researching, which could relate to many types of knowledge work; and (4) the fractional navigation of the Zone of Proximal Development in the learning aspects of

researching, which could have implications for learning-by-doing of other complex types of tasks with many roads to completion.

Item one, the multiple levels of Division of Labor, may be the most visible facet of librarian researching. The CHAT view on researching highlighted differences in the Division of Labor within, around, and outside of the researching. This multi-level view of dividing the Labor of research seems to have elements that stand out as unique to research done by librarians and other people employed for a job that is not primarily research. In future studies on librarians and other professionals incorporating researching into their jobs, I expect to look more closely at the interrelated levels of dividing Labor.

Item two in my list relates to the tight coupling of Objects and Outcomes. Generally in CHAT, we see the Activity targeting a specific target Object, with an Outcome intended later in time or intended separately by the organization but without an employee's particular involvement (e.g., a product that leaves production for a company to package and sell). However, in my analysis there seems to be a tight coupling of Object and Outcome and found it valuable to consider the Object and Outcome together, because of the importance of the Outcome to the shape and successful targeting of the Object. It seems as though this may be part of the professional nature of librarianship and the drive for recognition and reputation in higher education. It might be interesting to see whether similar experiences happen among traditional faculty, especially in smaller-enrollment disciplines that get less attention on a campus.

Thirdly, in academic librarians' researching, we also had confounded intellectual and physical research Objects: the findings and the publication/presentation. This may say something interesting about CHAT and all researching, or even more broadly about CHAT in the knowledge economy, when the target of most of the work is an intangible knowledge product,

which only becomes tangible as either a further activity or as a coupled but not innate part of the intellectual activity. It may be necessary to consider how the hierarchy of tasks and goals interacts with the various constructs of CHAT, and especially the Object, when a significant Activity target is intangible knowledge work like researching or problem-solving. This is similar to the dualism between process and product, but exaggerated because there is an intellectual target (findings, in this case). that the intellectual target is the goal that most of the Activity process aims towards, but this target has an embodiment as a physical Object alongside it which is technically dependent on the intangible Object. However, the physicality of the tangible (published) Object makes it seem equally or more important. There may be some general insight to be had in researching and other forms of knowledge work and how the Subjects of such work develop their activities towards intangible and tangible objects.

A fourth theoretical insight of interest is this idea of fractional navigation of proximal development when approaching complex activities. This is particularly relevant to learning-by-doing skills development. From the way my interviewees talked about it, researching is very much a matter of learning while doing. The important insights for librarian researching include that it is not a matter of mastering one path a step at a time. One researching path may not answer the next research question, and it is not always as easy to scaffold the learning process with librarian researching as it might be with other learning. In 5.2.1 I attempt to describe a general strategy for decomposing some of the challenges of researching, but there is no one process or path that suits all research challenges. On the other hand, failing to navigate through uncertainty and complete one attempt at researching may not lead to non-learning overall. The nature of researching seems to have so many pieces, options, and directions that the learning and development process has its own uncertainties and nonlinear complexities. This view of learning

how to do complex work is somewhat different from more traditional scaffolding views. This difference seems to me potentially attributable to the fact that there are many routes that can be taken to succeed in researching, and many intellectual and physical artifacts we consider part of the umbrella of research productivity. This means there are many scaffolds that could lead to success, and any approach to the cloud of proximal uncertainty has the potential to gain some insight because of the vast range of possible routes to learn and develop in researching. Overall, I believe that the interaction of doing and learning in researching and the many complexities involved in researching allow for a more complex view of the concept of the Zone of Proximal Development in CHAT, which may be a particularly interesting theoretical implication.

Finally, there are implications for organizational policy that emerged, although a more in-depth organizational analysis would still be warranted. Issues that are particularly important include the role of clarity in supporting librarians' navigation through the profound uncertainty of research, the tacit intellectual environment and its role in librarians' sense of support, and the importance of a multi-layered Community of collegial support and expertise. I do not feel that I have a deep level of theoretical insight on these issues, but they emerged as elements of the library that individual librarians used to work through their personal challenges. Therefore, they will be addressed more in the practical implications of the study.

5.2 Practical Implications: Strategies for Success

There are many practical implications that can be derived from this study. For these participants and the participating sites, certain themes and strategies seem to have been most helpful in completing their research. Taking the broader and more transferable themes and examining them together suggests some practical conclusions that might help other librarians in researching. It seems safe to conclude that, for the participants in this study, becoming a

researcher is not straightforward. They experience challenges in learning to do the research itself, learning to interpret it for meaningful findings, learning to present it to the community, and learning to write for publication. As a result, this learning must be treated as a serious matter. Supervisory interviewees at these sites said that there was value in encouraging librarians to research, but participants believed that it could not be treated lightly. Frustrations that many of the interviewees faced resonate with anecdotal views in the literature, implying that the interviewees' frustrations may have relevance to other librarians. For libraries to which these experiences are transferable, research initiatives that require the development of new research competencies should be looked at with some care and attention to the potential needs and hazards. Creating or increasing expectations for research by academic librarians may require individual commitment and organizational support akin to other major strategic changes in personnel expectations.

Librarians and libraries that find these experiences potentially transferrable would need to treat research demands like any other work demands. For libraries, there may be a temptation to just establish research as an expectation and expect that to suffice. However, because producing research is a long-term expectation, there are challenges to creating professional development and accountability that effectively incorporate research expectations at comparable priority to other daily work. For librarians, there may be a temptation to put it off due to fear or to save it for the perfect time, which may never happen.

This points to the possibility that, instead, learning to do research should be handled the same way as learning to do any other major new skill or system: train first; set aside time to explore and work on it regularly; consult with others who have already been working on it; and implement new policies with the knowledge that the early tries are not going to be as good

because it is something new. The experiences of my interviewees suggest that these kinds of roll-out principles may be just as reasonable for learning to do research as they are for learning a new Integrated Library System. If research is a new organizational expectation, the whole organization may need a strategy to work on it. In the case of an individual new librarian's arrival on a new job, orientation and training in research may need to include the same attention to support as training in other projects and job responsibilities. Based on these interviewees' experiences, it is reasonable to think that time, practice, and exploration could be needed just as with any other part of a new academic librarian's job.

The relative dearth of research-learning conversation in the field does a disservice to academic librarians. There are some noteworthy initiatives to provide research training to academic librarians (e.g., the Institute for Research Design in Librarianship and the CARL Librarians' Research Institute). Overall, though, the field does not produce the same level of discussion about research as for discussions about databases, resource description, instructional approaches, e-resource management standards, metadata schema, assessment, or integrated library systems. My experience of conference topics is that these other topics I listed as examples are discussed in more conferences and conference presentations. Research (and specifically practices for how to do research as opposed to awards for well-performed research) seems to me to receive less attention in the conference circuit. That lack is understandable because research seems less immediately pressing, but it is a self-perpetuating deficit. Unfortunately, this deficit leaves the field without widespread resources for getting librarians started on researching.

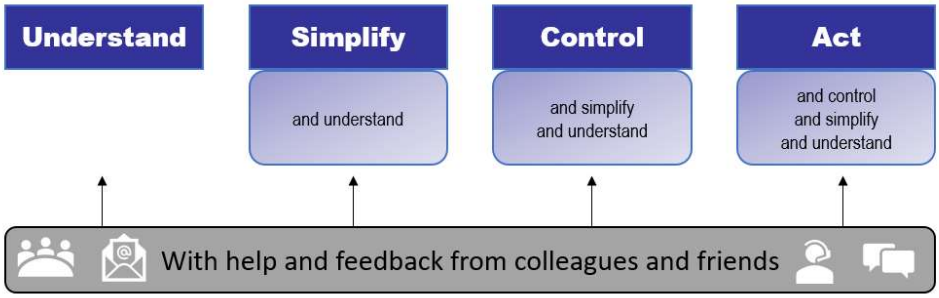
My study has practical implications for academic librarians and libraries alike. If academic librarians want to do research, many of the findings of this study help to identify strategies for getting started and growing in research. The findings and analyses in Chapter 4

include a great deal of thick description and analytical explanation. However, most pragmatic points are often buried in or across the thematic categories. This section attempts to highlight those key ideas most pertinent for practical use and advice to librarians and libraries.

5.2.1 Librarian strategies for developing research skills.

Research confuses new researchers. Therefore, I have attempted to synthesize the most critical librarian-controlled success factors from my interviewees into a plain-language strategy. This strategy neglects the nuances of the theoretically-structured findings in Chapter 4. However, it provides a more straightforward process that will be easier to enact in a real-world first-time research effort. The strategy incorporates four stages: (1) Understand; (2) Simplify; (3) Control; and (4) Act. Figure 5.5 shows these stages in graphical form. The intention is to balance the necessary knowledge to do research with the focus needed to get research done despite the confusion of all of the myriad possibilities in research.

Figure 5.5: The strategy of Understand, Simplify, Control, Act.



5.2.1.1 Understand.

Before researching, a librarian needs a sense of how research works, what it takes to get research done, and what they will make at the end. They also need to know what the process of creating an article – or whatever they are making with their research – looks like. Librarians who

have already had a research methods class may have the necessary understanding to move on to the next step. Those who have not may want to read or watch some brief materials on doing research. There are many excellent research texts, some of which are geared towards the needs of practitioners. However, it is important to be selective, because there is so much material on the topic.

After reading or otherwise exploring how research *should* work, it is important to get a realistic view of how research *does* work. The easiest way to get a realistic view of research is to ask for advice from experienced librarians who do research. If advice is not available, another way to work on it is to pursue becoming "research literate" by looking at other peoples' research and thinking about the process it took to get there. Articles have certain structures because those sections reflect steps – like making a problem statement and doing a literature review – that are important parts of research.

Discussing with others or taking a brief but focused seminar is useful for honing what to focus on among the range of possible background knowledge. A librarian should not let the search for background knowledge grow out of control. It is important to avoid letting the work of learning background distract from the work of learning to *do* the research.

Seeking advice is much better than trying to figure out research alone or from research textbooks. That is why graduate students doing research have advisers: to provide advice on the process because research is hard the first time. Librarians need advice about research too. Asking about research is a good way to start, but research is so big that the question may be too general. So then, as steps come up, it is important to be unembarrassed about asking again with more specific questions.

Research happens in steps, so there are parts to understand. These parts are often described linearly, but may not occur linearly. Roughly, the parts of research that my interviewees discussed were: (1) Idea creation and refinement; (2) Literature review; (3) Design; (4) Data collection; (5) Data analysis; and (6) Final product. Each of these has its own complexities and can vary from research project to research project; furthermore, they are not always one-to-one. Some examples of nonlinearity and the non-one-to-one nature of the parts of research include: one idea and literature review might split into multiple designs; data collected once might be analyzed more than once, and "final" products may be published or presented at various stages and highlighting different aspects of the other parts of research. As a result of these complexities, navigating through the uncertainty of research can take on a fractional nature, discussed in 5.1.1.2 (fractional navigation of the Zone of Proximal Development). Because so many directions and routes can happen during exploring the uncertainties of researching, it is possible to do some limited researching without knowing how it is supposed to be done. Knowing about these formal stages is useful both to organize the process and because they should appear clearly in the final product. Knowing a typical structure like this is essential to both the process and the structure of the typical research article. Breaking the process up into stages also helps the librarian to identify which research stages are the most confusing, rather than feeling that research is one large unknowable process. Researchers plan the stages initially in a particular order, and they happen roughly in that order, but they are not neat stages. The librarian moves back and forth among them, and even writing the final product may make a librarian think of something to change from earlier.

Understanding enough about these research steps and the article or other product to be made is critical. Furthermore, researchers need to know how steps one through five are reflected

in step six, the final product. Each of stages one through five represents both an activity and a written format. Understanding includes knowing the active process of doing that stage and the written process of communicating the stage.

5.2.1.2 Simplify.

Research is a huge prospect. Research projects can easily grow too large to handle. Learning to research has so many possibilities that it can grow and take over, keeping the research from ever happening. So it is important not to take on too much. The Simplify stage is the time to cut out unnecessary distractions and focus on just one research project.

The Simplify approach is to think of a single research project to start with. All of the things that are necessary to learn or do for completing this one project should be collected to work on immediately. All of the interesting questions that do not apply to this one research project should be moved to a list for thinking about later. Because on-the-job time for research is short, librarians need to focus their efforts so they are not trying to learn everything at once. Simplifying means learning – and doing – as much as necessary to be effective but with no extra unnecessary frills.

5.2.1.2.1 Strategies to simplify.

The core of Simplifying is learning what needs to be learned to meet a goal like publication now, and saving other learning about research for a later project. Just as with Understanding, when a librarian is not sure what to do now and what to do later, asking for advice and discussing with colleagues can help them choose. Just the act of discussing a project, even with a non-expert like a friend, can help the librarian decide what belongs in this research project and what should wait for another one.

One way to simplify is finding a co-author with whom to share the work. Someone with more research experience can help a new researcher through the technical parts of the process. It should be someone who can follow a research plan, so that both co-authors keep on a compatible schedule. It should also be someone with similar priorities of how research should be done (such as more rigorously versus more quickly). It is important to keep in mind that this may reduce the workload, but the collaborators should be careful about the added complexity in the coordination needed to work together. For that reason, simplifying through co-authoring only works as a simplifying strategy when one of them brings substantial experience to the table, or when the collaborators each bring complimentary abilities that fill in knowledge gaps for other team members. When those are not possible, co-authoring may not be an effective simplifying strategy.

The first research article is not expected to be a perfect research article, so another way to simplify is to write a non-research article first to get used to the article process. Then, once peer review is familiar, the next step can be a research-based peer-reviewed article. Both co-authoring and writing non-research first and research second are ways to break up the learning so that the librarian has less learning to master with each article written

For librarians who are comfortable with writing and peer review, Simplifying means deciding what to count as the immediate research study. More than anything else, Simplifying a research study means developing an effective and focused research question, in order to have a guideline for what is versus what is not to be included in the immediate study. A good question makes the rest much easier. Furthermore, a good question provides something specific to ask mentors and colleagues for advice on. Asking how to research a specific research question yields more effective answers than asking general questions about how research works. Working

through the research question – including definitions of terms in the question and ways to measure each of them – also lays the foundation for everything else. Once the question is established, it acts as the guideline to decide what to focus on learning now, and what to learn later.

With that in mind, the new researcher can focus on exploring just the methodologies, procedures, and research Tools that will help with this study. That can still be a lot, but is much less than exploring all of research. With this Simplifying in place the librarian goes back to working to Understand, but now Understanding is focused on the specifics needed to work through this research project.

5.2.1.3 Control.

Control means actively working out self-regulated ways to apply the focus and knowledge from the Understand and Simplify stages. That includes getting control over the research plan, getting control over the necessary time and resources, and controlling momentum to keep moving forward steadily. The librarian can apply principles from design thinking, project management, and time management to organize and Control the research project.

When working with a team, controlling the research plan also means planning co-author roles. It is important to make sure everyone is committed to the same plan. This means making an agreement about who will do which part of the work and who gets to be first author, who is second, and so on. It also means agreeing on a communication platform (email, google docs, etc.) and committing to a shared schedule of meetings and goals.

Committing is key to the Control stage. Control means committing to a specific plan of action, so that the librarian can Act without wondering what to do next. Acting will be the most important stage, which ultimately determines whether the research gets done. But when Acting,

things like confusion and uncertainty about what to do next make the librarian lose momentum. Losing momentum is how researchers start moving research to the bottom of the stack of things to do, and eventually procrastination and stagnancy let the project drag until it stops. The Control stage establishes a plan so that if one thing gets confusing, the librarian can switch to another task while sending questions to colleagues to clear up the confusion.

Control is established over the research plan, the time to work on research and writing, and the resources to get the research done. The research plan holds research, writing, and resources all together. It breaks up the research project into an outline of small organized steps. Having an outline lets the librarian assign time and resources to each step. The outline lets the librarian put steps and times into a calendar or other tool to self-regulate their activities. Lastly, the outline provides a list of tasks the librarian could work on, in case one task becomes too difficult. So for example, if use of analytical software results in an error message, the librarian can send an email asking a colleague or help forum for advice. But instead of stopping while waiting for a response, the outline lets the librarian look for other tasks to work on in the meantime, such as setting up journal author accounts and license forms or writing part of the introduction or literature review. This plan for self-regulation and self-discipline will help the final and time-consuming stage – Act – to be its most effective.

5.2.1.4 Act.

Doing something is the most important part of getting it done. This applies to research too. Unfortunately, that is harder than it sounds. Researchers have to face *uncertainty* because research answers are unknown, by definition. Uncertainty is something that people instinctively avoid. On top of that, because new researchers are not confident that they know what they are doing, there is even more temptation to avoid acting. That why getting the plan Controlled first is

important. But in the end, the only way to finish a research study is to do the research. The only way to write a research article is to sit down and write.

While writing, some things can help. One is watching the timeline to see the progress that has been made and the goals that have been achieved. That helps with remembering that progress is happening even when it feels slow. It also helps monitor progress so that if the timeline is not possible as-is it can be adjusted. More generally, whenever confusion or delays hit, the librarian can go back to trying to Understand, Simplify, and Control. Working with the confusion or delays might mean asking: (1) what do I need to know and understand; (2) what can I cut down to make it simpler and more manageable; or (3) what inside myself or from around me can I try to control to get rid of confusion or distraction?

Finally, just as with other steps, talking to colleagues is important. Librarians and faculty alike can give hints on facing concerns that happen while doing the research. Friends and family can give reading and editing help. Finding a "cheerleader" or someone to help keep enthusiasm high is very valuable, and the cheerleader can come from anywhere. Even the peer review process is structured to give assistance with editing and feedback on the article. The new researcher can treat it as constructive criticism to make a better article. Throughout the Act stage, colleagues can provide encouragement to keep working and not lose momentum. The librarian researcher will be engaged with doing – and continuing to do until it is done – the research to get findings and then continuing to produce the presentation, book, or article.

5.2.1.5 Summary of librarian strategies for developing research skills

The strategy of Understand – Simplify – Control – Act attempts to incorporate the experiences of interviewees into a practical approach to researching. Elements of it are much in line with existing advice on research. The idea that you must understand research to do it is

intuitive, and the need to commit to action and maintain progress is widespread in research productivity advice. The need for constant reflection and incorporating previous knowledge into current action is not novel either.

What stands out as different in this advice is the focus on scoping down. Understanding only what is needed for the immediate project, simplifying to remove as much extraneous effort as possible, and keeping control to prevent unnecessary elements from creeping in is not a common approach to doing research. The assumption is that the first research project is only the first, and that researcher-librarians will learn in stages that are messy by their nature. Treating each project as one limited step in the larger process of learning to be a productive researcher is a different approach, but it may be useful for developing research competency over a career.

5.2.2 Library strategies to support librarian scholarship.

Libraries need specific planning for how best to support their librarians' development in research. If a library wants to improve support for research productivity – or increase expectations while providing needed support to meet those expectations – then a strategy is needed. That presents a problem because, as a field, we do not know the best supports. Based on this study, some promising ideas have emerged. Published librarians and library administrators alike suggested techniques, described in this section, that can help a library's team to succeed at research.

5.2.2.1 Create appropriate policies.

Library policies that guide research production also affect research skills development. Most librarians will be researching to fulfill the requirements of employment policies around research. That means that the policies provide the first advice and structure available for them to learn from. Policies should be written to be useful as advice. They should be written on the

assumption that they will be read in close detail by novices, without the benefit of advice from the policy authors. Not only does this help new librarians, but it also makes policies easier for external stakeholders to understand and apply.

The most important trait of research policies is that they are clear. Vague, unfollowable, or outdated phrasing can only do harm. As much as possible, policies should be tied to and organized by any relevant employment evaluation documents. That way, they will also be helpful for organizing any necessary research evaluation dossiers. Policies also need clearly defined terms and, where standardized guidelines are required, standards that can be easily evaluated as met versus not met.

On the other hand, policies should not be overly restrictive. The interdisciplinary nature of librarian scholarship is important to the field. Therefore, policies must be as flexible as possible in the context of the campus. The boundaries of what is outside of that flexibility should also be explicit, so librarians can tell if an idea for research oversteps the policy's intended flexibility. Policy writers should consider the benefits of nontraditional forms of scholarship; non-library research and work in the disciplines; and the range of scholarly and creative works that would fit the library's culture. Those should then be described with details on how their appropriateness versus inappropriateness to the policy can be evaluated. Rather than vague "other as applicable" statements, specific guidance is needed on how to determine whether innovative ideas fit the policy.

5.2.2.2 Establish visible administrative support for a pro-research environment.

Library administration has to juggle many priorities, and wise librarians take their cues on prioritization by what their leadership promotes. If research is a top priority, then

administrators and supervisors should be seen supporting research. That includes both tangible and intangible support and visible guidance that helps librarians see and understand that support.

Effective tangible supports include (1) time to work on research and (2) funding to travel for presenting results, learning, and networking. Information on accessing campus-level supports is also valuable for novice librarians who may not be aware of on-campus assistance. There are other effective supports, but in this study those emerged as the most essential supports. It is good to build statements of how resources like research time relate to expectations of research productivity. If librarians can see that the expectations and resources are at a comparable level – and that they have parity with other campus research productivity levels – then they are better able to understand the expectations.

Supervisors should provide guidance and regularly set clear expectations. Because learning to research is slow and the daily work can overwhelm it, gentle reminders about goals should be given in combination with offers of advice or assistance. Some valuable types of assistance are suggesting connections with peer librarians; helping break research into smaller achievable goals; and listening to research ideas and providing useful suggestions. Most of all, the guidance should be clear but non-judgmental so that new researchers understand but do not feel stupid.

Finally, library administrators should provide public recognition of research success. By recognizing research success, leaders encourage research. By making that recognition public, leaders help librarians know who the go-to people are for learning research processes. Recognition events can be improved even more by encouraging researchers to tell their research stories. Shared research stories help other librarians to understand how research happens and see research challenges as things that can be worked through.

5.2.2.3 Build communities that promote supportive relationships.

Advice from colleagues is essential to learning to research. Promoting collegial relationship-building helps new researchers to learn. This can be a grassroots effort by librarians or an administratively-guided process. A good approach is to hold discussions or events to build a research community. Discussions and other events allow librarians to discuss their research interests, ask questions, and share insights. This facilitates a non-judgmental environment where research is part of the ongoing dialog. To help it stay non-judgmental, events should not be held so frequently that no one will have made progress. But semi-annual to annual research discussions allow enough time for librarians to know what their accomplishments or challenges are, and to be prepared to discuss them. Research events also empower librarians to look for informal mentoring arrangements and peer mentors. Formal mentors focus on job success overall, so they are not necessarily skilled in support for research progress. But having a variety of informal and peer mentors gives librarians a variety of sources of research advice. Finally, regular discussions encourage partnerships for accountability.

Accountability partners help encourage forward momentum. Knowing that someone is going to ask about progress at a certain date can motivate some librarians to keep making progress on research. Momentum is important because it is easy for librarians to get sidetracked from research projects. Anything that helps librarians to keep moving forward with research is valuable. Research events generally help with momentum. Having events on the calendar where librarians talk about research encourages them to have made progress, in order to have something to discuss. So even librarians who do not build formal accountability partnerships will be encouraged to make some progress before the event happens.

If a more formal community fits the culture of the library, the library should consider working towards scaffolded research relationships. Research is like other professional development: librarians start as mentees and need to get support, then over time they transition to equals and hopefully to experts and become mentors to other librarians. Scaffolding can help with this movement through relationships. Planned scaffolding provides support for librarians to ease into research in stages over the course of a few articles instead of having to master it all at once. A good approach is to match novice librarians with experienced co-authors, then pair the librarian with another who has some experience for an article or two (possibly first with one then the other taking the lead), then for each librarian to publish a solo research project, and finally for the now-experienced researcher to be the senior partner with a novice. This moves novices through the process gradually and allows them to publish while also developing their skills. Most libraries will not always be able to make the needed matches to work each novice through partnering with a highly experienced colleague, then a moderately experienced colleague, then to solo authoring, then to being a senior or mentoring colleague. But it is still good to try to follow a principle of encouraging groups of co-authors and finding ways to encourage collaborations between researchers with complementary levels of experience. Overall, any arrangement that helps to foster communication and feedback between experienced and inexperienced researchers will benefit the overall research productivity of the library.

5.2.3 Summary of practical implications.

Librarians can and do navigate the research process. Even when a librarian has a sense of inadequacy or even fear, success can still happen. That is a remarkable indicator of the persistence and creativity that can happen. All of the librarians I spoke to felt that more support and new ideas of how to get support were needed. However, they also found that, when they

worked in careful stages through the process, they were able to get through even in the face of discomfort. This took slowing down and thinking about the process and reflecting on what they had learned. When thinking through the processes they had followed, librarians who might not feel like researchers were still able to discuss what research was and how to do it.

This kind of reflection seems to me like it would be a valuable idea for librarians who are working through research, to realize what they have learned and integrate it effectively. So in my suggested Understand-Simplify-Control-Act strategy, at each stage the librarian may – and should – revisit earlier stages within the context of the current stage. For example, while working to Control the project, the librarian will also collect knowledge to Understand the boundaries of the tasks they are controlling. For another example, while working to Act on collecting data, they need to Understand and Simplify their data tasks and exert Control to avoid getting distracted by interesting side-questions that arise but are not part of the main research question.

Furthermore, libraries can and do succeed in encouraging research among their librarians. A deliberate effort to create a pro-research environment is important, and research obligation policies cannot be treated as a "set and forget" statement of expectations. However, academic libraries can benefit from increased reputation and stronger engagement with campus faculty if they encourage research. Libraries can benefit from a considered approach to encouraging research, alongside a deliberate strategy of aligning expectations with supports. This may not meet all libraries' strategic needs and faculty status may not be right for all libraries, but if a reputational payoff in faculty perceptions of librarians meets a library's strategic needs, then the means is certainly attainable.

5.3 Limitations of This Study

The predictable limitations of qualitative analysis apply to this study. A qualitative study is intended to understand the lived experiences of participants and is not expected to be generalizable. This study was created to explore themes and experiences of academic librarians in developing the skills to do research. To ensure that the interviewees would be able to discuss their research successes and supports, recruitment centered around sites with one or more active researchers. This may have skewed the story towards strong support environments. At the very least, it underrepresented the challenges and stories of failed research.

5.3.1 Sample bias and sample limitations.

A further limitation in the sample occurred due to the volunteering process. The librarians and sites that were most interested in being interviewed were mostly those that were actively interested in research. This is not surprising, but it does color the findings. While there were interviewees who were not yet starting to research or who had stalled, there were none that had chosen to entirely "opt out" of trying to do research. These stories about profound research challenges were mostly indirect anecdotes.

Another limitation in the sample was the lack of support groups. Although the literature mentions several support group and writing group strategies, only one of the six sites had an active support group. There were discussions of wanting or intending a support group, but only one site had been able to establish and maintain such a group. This might be an artifact of the sample, or it might mean that support groups are less common than the literature seems to imply. Either way, formal support groups were not as well represented in this analysis as I had expected when designing the study. Writing groups and other formal support groups and communities of practice would be a good focus for future investigation.

5.3.2 Organizational transition experiences.

The sites that volunteered were mostly places with established research expectations and supports. The advantage of this is that the results include proven organizational strategies. The disadvantage is that the findings are less robust about struggles for organizations creating new research expectations. Leaders interviewed on-site did relate the process of reaching some form of support parity with other campus scholars. But these transitions were in the past and no non-supervisors were interviewed. Therefore, the experience of being a non-supervisor librarian trying to navigate that organizational transition was not well discussed. I cannot say with any certainty what the librarian experience in that transition is, only what supervisors remembered and what interviewees had heard from colleagues' anecdotes of the experience. One can draw inferences from the organizational stories interviewees had heard and the librarians' current experiences, but from the data collected for this study, we do not know the exact roadblocks during such a state of change.

This creates a challenge in describing supports that will help during the midst of a transition from lower to higher research expectations. For the external relations, it is essential that librarians advocate for supports of time and funding that are equivalent to other campus researchers. But in terms of internal supports, there was less information about how interviewees succeeded during that organizational change. Studying the experiences of librarians in the midst of changing research expectations would be another interesting area for future examination.

5.4 Suggestions for Future Research

A goal of this research has been to create a model that will inform future studies. My intention is to use this study as a part of an exploratory-sequential design, to use my initial model of themes in section 5.1 to build a more generalizable quantitative study. To that end, the first,

most logical next step for building on these findings is to pilot a survey based on the model. The pilot would then inform a wide-scale generalizable survey. A generalizable quantitative study would be valuable for many reasons. The foremost is to determine whether/which of these experiences are particular to individual sites and participants and which are more broadly experienced. Another value of a larger study would be to examine how a broader set of institutional characteristics (e.g., size, status, status history, Carnegie Classification, etc.) tie to organizational variation among libraries. Furthermore, a survey will also allow for a wider range of open-ended, qualitative responses. While these will not have the depth of the site interviews, they will increase the diversity of librarians' voices on the theme topics.

The fractional navigation of the Zone of Proximal Development seems like an idea that might have farther-reaching value. This fractional navigation concept might lend both theoretical and practical insights into how learning-while-doing works for complex intellectual work with many possible routes and many possible solutions to how to approach problems. In the knowledge economy, as work problems become more multifaceted and intellectual, it would be intriguing to understand whether the Zone of Proximal Development must be navigated in fractions rather than scaffolds. Scaffolded learning assumes that the smaller task leads reasonably to the larger next-more-complex learning task. But if only part of a simpler tasks applies to the best-case solution, and part leads away from the best-case solution, then working through complex uncertainties may need a different approach. This could have considerable meaning to how people work through liminal knowledge states as well as how novel problems can be faced in work and other problem-solving.

Another area for future research is reanalyzing this study at an organizational level of analysis. Whether within this dataset or through adding to this dataset with some theoretically-

sampled sites, a different angle on the analysis would allow more details to be uncovered that may still lay hidden in the richness of the participants' experiences. An organizational-level analysis basing the Subject and sense of agency around the site would be challenging, but provide a way to add library-level insights that might improve policy and administrative practice. Yet another future idea would be a more granular analysis of a specific construct within this view of researching, to expand individual themes or the interrelationships between constructs. Several of the individual constructs had themes within them that would benefit from more focused examination. Many have been alluded to in policy discussions or anecdotes in the literature, but their prominence as major themes is highlighted by this study. Some examples are understanding the nature of librarians' scholarly identities; best practices in promoting networks in the profession to form around research; and examining the balance of costs and benefits in different percentage Divisions of Labor between the Labor of research and the Labor of librarianship. The multiple levels of the Division of Labor in researching for nontraditional researchers who are expected to follow a structured workweek is of particular interest. Since research is pursued by many people who are nether faculty nor dedicated researchers, this Division of Labor could affect librarians and other fields.

The interinfluences between constructs also need deeper examination. Interinfluences point to particularly complex parts of an Activity that span constructs and may point out important shaping forces in the Activity. Having identified themes that connect two or three constructs in Activity Theory, it would be good to make a deeper investigation of these interrelated themes. In particular, the tightly-coupled interrelationship of Object and Outcome in researching bears more research. It would be good to know if this is due to some larger ambiguity about why research is done in the library profession, or if it is due to the nature of

higher education research and tenure, or if there are other reasons beyond these sites' particular contexts. Studies of the sociology of higher education could be a direction to consider for this problem. It would be possible to look at faculty as a whole and how they view the targeted aim of research versus the distal purpose of research. It would be interesting to see if other faculty see the true aim of research to be tenure, showing a similar entanglement of Object and Outcome.

Similarly to the entanglement of Object and Outcome, the dualism of research findings and dissemination products would be another interesting area for broader research. Possibly librarians, as workers with knowledge products, have a unique view on how findings and products interrelate, but possibly not. An interesting follow-up would be investigating how researchers of many different types perceive the relationship between an article and the knowledge in the article. This may be an area for mainly philosophical inquiry. But psychological inquiry could also approach an understanding of how different kinds of researchers and different disciplines view the dualism between findings and the presentation of findings. Understanding the dualism and tension between intellectual and physical aims of research might lend useful insights to the study of scholarly communications and the underlying concepts behind research networks and modes of communication.

Finally, research is needed in how well deliberately applying researcher-librarian development strategies works. In the sites visited, there were more research practices that emerged through trial and error than practices that were deliberately applied. In the end, a major benefit of this study will be in its applied usefulness. It is hoped that the future will see the practical approaches tested, assessed, and improved. It is hoped that libraries will begin trying strategies, assessing them, and sharing the lessons learned. My intentions for this research will be fulfilled if academic librarianship takes my findings, assesses them in practical terms in many

contexts, and improves on them when applied to the practice of academic librarianship. I hope that will happen and foster a wider and more robust discussion of on-the-job research competency development throughout the profession.

APPENDIX A: PARTICIPANT SOLICITATION E-MAIL

Dear colleagues,

Hello! I am a full-time librarian and part-time doctoral student working on my dissertation research. I'm interested in talking to academic librarians who are doing original research for peer-reviewed publication or national presentation, or who have already published or presented. I'm looking mainly at new and moderately-established researchers among academic librarians (ranging from 0-4 publications). If that describes you and you might be interested in talking in-depth about your research process, challenges, and successes please read on!

My study focuses on the question, "How do academic librarians develop researcher competencies?" Sub-questions include, "What challenges to librarians face in developing as researchers?" and, "What supports help academic librarians develop as researchers?" I am hoping to have site-centered interviews with a range of academic librarians who are doing or have done research. If you want to participate and fit in the sample, then while on site at your library I would like to interview you for about 2 hours (not necessarily all at once), talk to 1-3 colleagues in your department who are at different stages in their research, and interview a supervisor about how research fits into the library's workflow and strategic priorities. If you have a writing group or research committee I would love to meet with them as a group too, but I am interested in libraries with no support group as well. I would plan to stay 1-3 days, depending on your schedule. I know that is a lot to ask; if it would help in return I would be happy after finishing my interviews to provide any help I can with facilitating research-planning sessions or

working with individual librarians in return. I would be paying all of my own travel expenses as well; your valuable time is the only assistance I am looking for.

If you have questions about my research or what I might be able to help your library with in return, please do not hesitate to email me at nexner@live.unc.edu or ninae@ncat.edu for more information. I have IRB approval through UNC Chapel Hill.

Are you interested? If so, please click to see (and, if still interested, sign) my consent form at [link to be inserted] and then fill out my 10-minute screening survey. I'm looking for a range of different stages in the research process from novice to moderate experience, with a few site visits at each. I'll respond to everyone who fills out the screening survey by 2 weeks after this email went out, to update you on how things are going.

Thank you so much for your time and consideration!

Best,

Nina Exner

Researcher and Grant Support Services Librarian, North Carolina Agricultural and Technical State University

Doctoral candidate, University of North Carolina School of Information and Library Science

APPENDIX B: SCREENING SURVEY

For this study, research includes conceptualizing a library-related qualitative or quantitative study, collecting data, and analyzing data.

- What is your name?
- Are you currently planning any research projects?
- Are you currently collecting data for any research projects?
- Are you currently analyzing data (primary, secondary, or textual) for any research projects?
- Are you currently writing up or creating presentations on any research projects?
- How many research studies have you been an author, presenter, or other major contributor on?
- How many national presentations have you given alone or as part of a team?
- How many national presentations have you been the lead (only or most of) researcher on?
- How many national presentations have you been a non-lead researcher on?
- How many peer-reviewed journal articles have you been part of researching and/or authoring?
- How many peer reviewed journal articles have you been the lead (only or most of) researcher or author on?
- How many peer reviewed journal articles have you been a non-lead researcher or author on?
- Are you tenured or on the tenure track as a librarian?
- Does your library have non-tenured faculty status, faculty rank, or similar faculty-like performance expectations?

- Is your supervisor or another supervisor at your library interested in talking to me about the role of research in the library?
- Are there peers in your department who would be interested in talking to me about their research or about reasons they do not research?
- Do you have a writing group or other research support team?
- Would some members of that team be interested in talking to me?
- What is your e-mail address?
- What institution do you work at?
- Do you have any other comments about your research experiences or your library that might make your situation especially informative to this study? [open ended]

APPENDIX C: PRIMARY INTERVIEWEE INTERVIEW SCHEDULE

- Can you me about any current research project
    - If you're not currently working on a project, how about the last research you did?
- Would you be willing to show me some of how you do research? Please start with the basics, assume I don't know anything at all. If it helps, imagine I'm a library student or an assistant you're training for the first time.
- Transition script - “That has been very helpful, I'm glad to have seen a lot of your process! I'd love to see more but I don't want to eat up all of your time. While you are on your computer though, would it be possible to print or share some of your library’s public documentation with me? Like if you have support standards such as mentoring handbooks, And also research guidelines like minimum requirements or recommended places to present or publish? Anything like that, that’s shareable like it might be publicly posted but just isn't because no one has time to post work documents? That would be great.”
    - n.b.: if the interviewee has already sent some documents, I asked if any more have occurred to them while discussing.
- So how are things going with your research project?
    - What about work, how is that interacting with your research?
    - Had you worked on research before this?
    - How did that go?
- How have other people helped you with your research?
    - Sounds like a real community. How has that come about?

    - Sounds like you wish you had more of a community. Is there anything in the works near you?
    - Have other people helped you learn?
    - Are you still working on building your support community?
        - Is that going well?
        - Any challenges with that?
- What kinds of guidelines and procedures/rules have you learned about the research process?
    - Does that interact with library guidelines do you think?
    - Did that help you focus / grow your research?
- Research has changed a lot since I started as a librarian. Is that true for you too?
- Would you tell your past self, when you were planning your research, to change anything?
- What challenges have you encountered so far in your research?
- Are there challenges that you see coming up, with working on your research?
- As you can work through challenges, has it helped you grow as a researcher and professional?
- Are there any examples when you weren't able to work through a challenge?
    - What did you do?
    - How did that affect you?
        - As a researcher, or as a librarian? Or both of course.
- Is there anything you're uncertain about with your research? What things?
    - How are you thinking of dealing with that?

    - Is that scary? Intimidating?
    - Any idea where that might lead as you work through it?
- Sounds like you're dealing with some big challenges, but also doing some big work. That's a lot, I'm really impressed!
- What are some of the biggest, important skills you've gained about research?
    - What made that critical?
- What are some little but important things you've learned?
- How have your research skills come together? Or have they?
    - Is there more they/you can do to bring your skills together into a whole thing?
- Do you think you have changed, personally, as you've worked on your project?
    - Will you be continuing like that?
    - Is that helping/hurting your research plans?
- Do you feel more like a researcher now?
    - Are you ready for that?
    - How will that change in the future?
- Do you think this, research, has to do with librarianship as a whole?
    - Can you give be an example of ways it did/didn't relate well to your being a librarian?
    - Like, other librarians at work/conferences/places like this?
    - Is there something about librarians that ties in with this kind of research?
- How about your library and this research, are there connections there?
    - Did/will they support you?
    - How will that work with your other tasks?

    - Will that be important/challenging/valuable into the future?
- Have you been able to bring skills back to the library to help other librarians who are starting their research?
    - Such as mentoring or sharing ideas with a group?
- This has been a great discussion. Is there anything you'd like to go back over? I'm the type that thinks of things five minutes after I should have said it.
    - Anything that struck you or brought up earlier questions.
- When you talked about [earlier point] do you think that might tie in with [other point]?
- As we wind down, any advice for other would-be researcher-librarians or for me?
- Do you have any last comments or questions? Is there anything I can help you with?

APPENDIX D: NON-RESEARCHER PEER INTERVIEW SCHEDULE

- I appreciate you being willing to talk with me. I fought with research for years, published - and also got rejected from publishing - some pretty bad articles. And I found research to be pretty frustrating for early-career librarians. That's a big part of what got me started looking into the barriers and supports around research in academic libraries. And I know a lot of librarians who've opted out of it, whether or not they were required to do it. So I'm interested in the views of people who haven't started yet or even don't plan to, so I can get a good, well-rounded view. So thank you again for being willing to talk to me.
- Are you interested in doing research?
    - Why?
    - (If yes)
        - When do you plan to start?
        - What would help you get going?
        - Do you have any particular goals that make you interested in research?
    - (If no)
        - What is keeping you from doing research?
        - Would you do research if the situation were different?
            - What would it take to get you to do research?
            - What supports would you want to have?
- What do you think of libraries where research is required?
- What are the benefits of not doing research? Does it have a payoff?
- Have you talked to any researchers about research? What was your impression of what they said?

    - In or out of the library
- Have you heard any discussion about research tools?
- What about research procedures, a those discussed much?
- Do you feel like research is valuable to the library?
- What about the profession, is the research discussion a hindrance or a help to librarianship?
- If you could tell library students something about the whole research thing in academic libraries, what would you tell them?

APPENDIX E: SUPERVISOR INTERVIEW SCHEDULE

- Can you tell me about how the department is organized?
- What about department members' task expectations, what are those?
- Is there a formal research requirement or expectation?
    - Can you tell me more about it?
    - If not, how many engage in research for personal or profession-wide reasons?
- Any idea why there is/isn't a research expectation?
    - Has it ever come up?
- Are there campus pressures for/against librarians spending their time doing research?
- Do research activities affect the larger library?
    - (If so) How?
- Do you think that research tasks affect the department's workflow?
    - (If so) How?
- Have you done research, here or at other libraries?
    - How does that affect your views of research in libraries?
- Are there ways the library supports research?
    - Do people work together around research?
    - How do those affect the workflows and work arrangements in the department?
    - What about individual peoples' work arrangements? Are those affected?
        - What about [primary interviewee]'s research? Has that had any effects?
- Can you tell me about any guidelines or policies around research?
    - Departmental, library wide, campus wide, whatever.

- Would you change things to have more or less research if you could?
    - What would be a better system for you?
    - Any thoughts on what might happen if that changed?
- Do you have my tips or suggestions that you would share with other libraries or librarians, around the issue of supporting research?
- What about other supervisors of would-be researcher-librarians, any tips or insights for them?
- Do you have any questions for me, or anything I can help you with?

APPENDIX F: FOCUS GROUP INSTRUMENT

- Can you tell me about this group?
    - What is the organization of this group?
    - What do you do when you meet with each other?
- How do research projects get carried out at this library?
- How does research here interact with the larger university community?
- Why do you research?
- What kinds of research supports do you wish you had?
    - Is there anything that has been successful in the past for colleagues or has worked for you in the past but is no longer available?
- What kinds of challenges do you experience in forming research?
- What advice do you have for other librarians that want to do research?

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